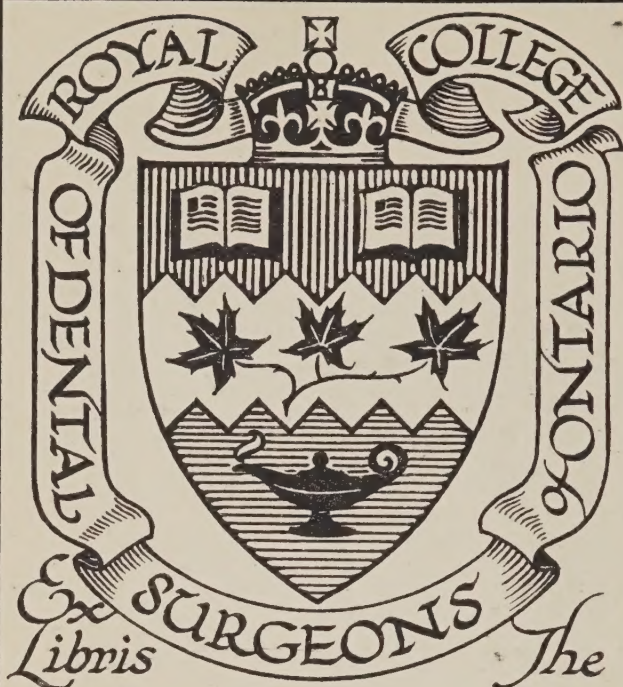
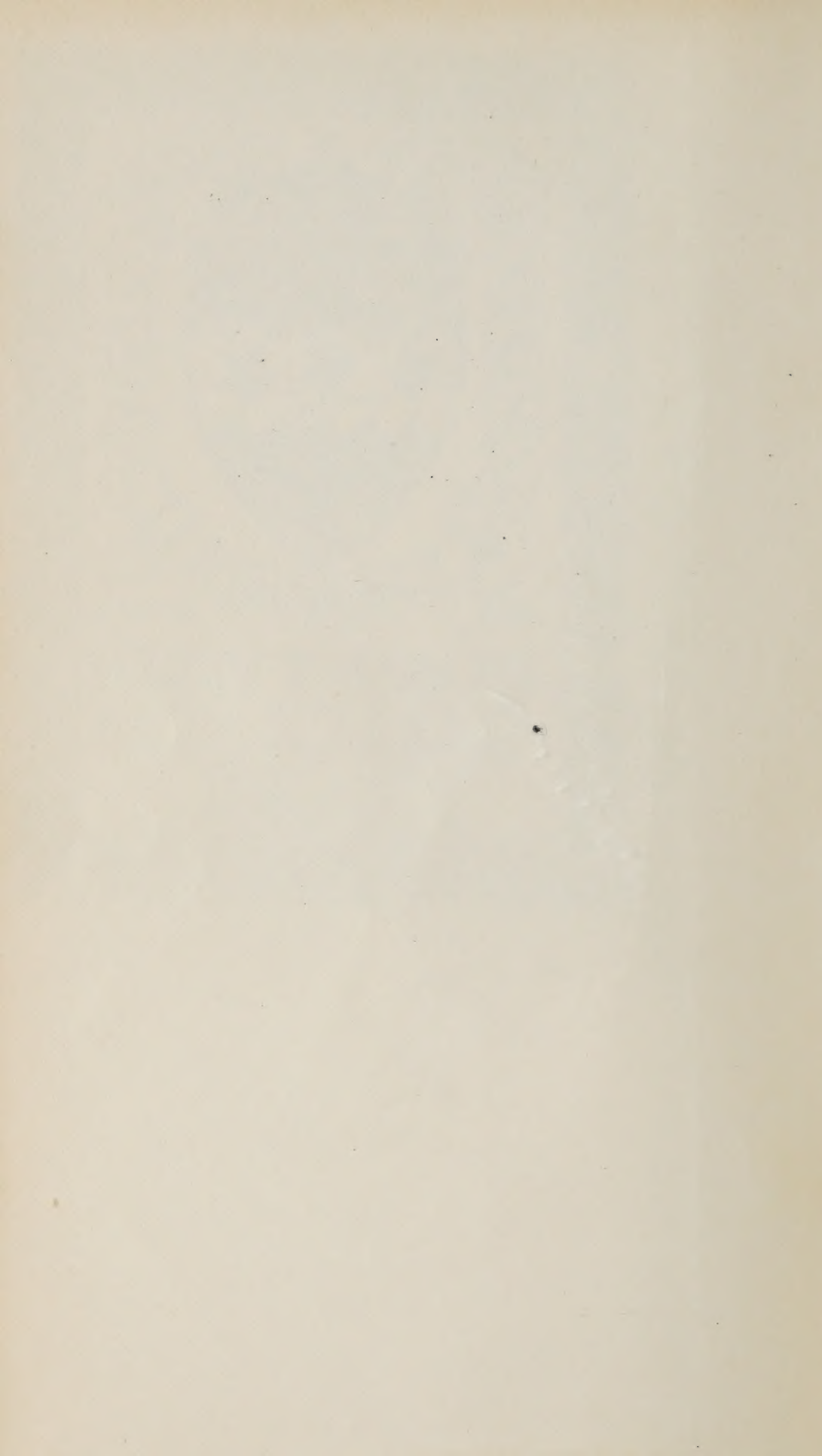


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“What we think, or what we know, or what we believe, is in the end of little consequence. The only thing of consequence is what we do.”

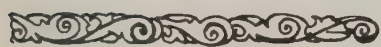
—*Ruskin*



MAJOR-GENERAL THE HONORABLE S. C. MEWBURN, K.C.
PRESIDENT, CANADIAN DENTAL HYGIENE COUNCIL

ORAL HEALTH

*A JOURNAL THAT STANDS FOR THE "OUNCE OF~
PREVENTION" AS WELL AS THE "POUND OF CURE"*



Vol. 15

TORONTO, JANUARY, 1925

No. 1

A Message From Hon. S. C. Mewburn, K.C., President of the Canadian Dental Hygiene Council, to the Dental Profession

IN the conduct of a great war, there are triumphs other than those of arms.

The inclusion of the Dental Services, as a branch of the Army, was an innovation made during the Great War. Further, the innovation was made in the Canadian Expeditionary Force, and to their lasting credit the Canadian Army Dental Corps led the way.

I had abundant opportunity of observing the wonderful work done by the Canadian dentists, in making tens of thousands of enlisted men fit for service, and during active operations, they were able to get a grasp of the dental health of the troops, and to lay down in advance a policy for the end of the war.

Facial surgery was one of the marvellous achievements of the war. This work was divided between the Medical and the Dental Services. It is difficult to draw an exact line of division between the work done by these two services.

Many lessons were learned during the Great War, which should not be lost sight of in peace time, and one of the greatest is in promoting throughout the whole community, public health and efficiency through improvement in habit of diet, and the proper care of the mouth and teeth.

It therefore gives me peculiar pleasure to be associated with The Canadian Dental Hygiene Council, whose objects are to render aid in improving the health of the citizens of our great country, and to publicly record how I appreciate the ability, diligence and devotion to public duty displayed by the members of the Dental profession in Canada.

Hamilton, January 2nd, 1925.

S. C. MEWBURN.

Studies in Periodontal Pathology*

AN APPRECIATION OF RECENT RESEARCH BY HAROLD KEITH
BOX, D.D.S., PH.D., F.A.A.P.

JOHN OPPIE MCCALL, A.B., D.D.S., F.A.A.P.



IT is my purpose in preparing this paper to give a resumé of the salient points in the recent work of Harold Keith Box on the histopathology of the periodontal tissues. Those who have been in close touch with Dr. Box in recent years, have realized that his earlier work on the pulp, dentin and cementum constituted simply a step toward an even more important phase of histopathologic research, and they have also realized that in many respects his work, when published, would prove as epoch-making as was that on the dentino-cemental junction. These expectations have been fulfilled. Not only has the perfection of preparation and staining enabled him to delineate most perfectly the minutiae of the periodontal structures, but the sections so prepared have been given a most reasonable interpretation, one, however, which controverts in no uncertain terms some theories long accepted as facts by many in our profession. At first thought it might seem unimportant to some of us whether periodontal disease begins in the gingival tissue, the pericementum, or in the alveolar bone. Other theories which have held the attention of dental literati, may seem even more nebulous and less important to the man at the chair. One reason for the disinterestedness of the profession toward the discussions of research workers in the field of periodontology, has undoubtedly been the failure of these theories when subjected to the test of practical application. To one who reads Box's latest paper, however, it becomes obvious that the evidence of the microscope properly interpreted becomes at once the groundwork upon which all successful practice must be based, and furthermore that theory founded upon truth will inevitably tally with clinical experience.

But the evidence of the microscope is not all, for without a visualization of the gross changes taking place in tissue, the microscopic manifestations of tissue change would be meaningless. To the study of the minute pathologic anatomy of these tissues, Box has brought ripe experience as a successful clinician in the treatment of periodontal disease, and a complete familiarity with the work of such eminent periodontists as Stillman, James, Hartzell, Hutchinson and others. With

*This paper is founded on a paper of the same title by Dr. Box, published as Bulletin No. 7, of the Canadian Dental Research Foundation.

this experience as a background, he has arranged in orderly sequence the pictures revealed to him through the high-power lens, and has presented to us the first convincing story of the destructive diseases of the investing tissues of the teeth, how they are initiated, and how they progress. It will be difficult for any one to dispute his findings when backed by the photomicrographs of sections cut from human teeth and jaws. The significance of these findings can hardly be over-emphasized.

Let us first seek out the salient points made by Box in this paper on Periodontal Pathology. Following a description of the periodontal tissues and of the various types of gingivitis, he has given us a new and important classification of parietal periodontal disease. It is a well known fact that when teeth become loose and are exfoliated, it is the result of a disease process whose principal feature is the dissolution of the pericementum and bone, with pocket formation. Box has described this type of periodontal disease in detail, and has analyzed the steps leading to the formation of the pocket. In doing this, he has chosen to delimit certain phases or stages in this pathologic progression, each of which has characteristics distinguishing it from the others. Taking the progression as a whole, he calls it Chronic Periodontitis, a term which thus covers what has so long been called Pyorrhea Alveolaris. He then sub-divides it into two similar and yet dissimilar disease conditions. These he calls Chronic Periodontitis Simplex and Chronic Periodontitis Complex. Each of these is divided into sequential phases. In essence, the chief difference between these two conditions lies in the fact that the first phase in Chronic Periodontitis Complex, is Rarefying Pericementitis Fibrosa, a new disease which Dr. Box has discovered, and which does not occur in Chronic Periodontitis Simplex.

Since the Complex type of Periodontitis is far more common and destructive than the Simplex type, Rarefying Pericementitis Fibrosa assumes a position of great significance. Its discovery is so important that it unquestionably places Box's name along with the name of Miller in the gallery of Dentistry's Immortals. Like Miller, he has discovered the initial lesion in a disease process which is as destructive to the human dentition as is caries. Like the work of Miller, his work points the way clearly to the final solution of one of dentistry's big problems. And it does this by at once stating what the beginning of the scourge of periodontal disease is, and at the same time disposing for all time of the false theories that have confused us.

Rarefying Pericementitis Fibrosa is the name of a disease process in which there is formed in the pericementum a new tissue. In this new tissue, the reaction around the blood-vessels is a conspicuous feature. It exhibits evidence of a mild inflammation. Up to the present, no relation to bacterial infection has been demonstrated. In fact, the

pericemental changes frequently appear before there is any gingival inflammation. The inference is obvious that the cause, or part of the cause, of this disease must be a mechanical irritant. And as it appears distributed at many different points in the pericementum, even in the periapical region, it is clear that the mechanical irritant, traumatic occlusion, plays a large part in its causation.

Rarefying Pericementitis Fibrosa, soon after it makes its appearance, changes the normal arrangement of the pericemental structures and produces a rarefaction of the adjacent alveolar process. This alveolar rarefaction is brought about in several different ways. But the end result is destruction of the alveolar bone. This settles at once the question as to whether or not alveolar absorption precedes and progresses in advance of dissolution of the pericementum through pocket formation. Box does not go into the question of etiology in detail in this paper, but hints very plainly at a local mechanical factor, traumatic occlusion, as the probable agency causing pericemental fibrosis and alveolar resorption in many cases. This same view is virtually forced upon those who study the photomicrographs with open mind. For many of these sections show a distribution of activity in bone absorption which can only be explained, in the opinion of the writer, on the ground of a local factor of mechanical stress as the dominating feature of the etiologic picture.

In Chronic Periodontitis Complex, the second lesion is ushered in as an infective process. Box calls this "Infective Periodontitis," a disease which he then subdivides into three phases which are initiated in a definite sequence. The mature lesion of Chronic Periodontitis Complex is then virtually made up of four distinct lesions which have become more or less fused into one major disease. The first phase of "Infective Periodontitis," is "Chronic Cemental Gingivitis" with pocket formation beginning at the base of the gingival crevice. By extension apically the pericementum is next involved, and we have Phase 2 of Infective Periodontitis, *viz.*, "Chronic Pericementitis." It should be kept in mind, that due to the rarefying action of the Pericementitis Fibrosa, the crest of the alveolar bone has been resorbed. In consequence of this, by the time the pocket has extended to the pericementum, there is no bone remaining at the point of the infective process. This relationship is maintained throughout the course of the disease.

The third phase of Infective Periodontitis is "Infective Osteitis." This usually does not make its appearance until the pocket has extended well toward the apex. Each of these three phases is continued, as is also the initial Rarefying Pericementitis Fibrosa, the four by their coalescence going to make up a typical advanced case of so-called "pyorrhea alveolaris."

It is interesting to note that Periodontitis Simplex occurs through the initiation in sequence of three diseases, and that these are identical in the essentials of their pathology, with the phases of Infective Periodontitis just outlined. The three phases of disease, which by their coalescence make up Chronic Periodontitis Simplex, occur in a different order, however. Nevertheless, the chief difference between Chronic Periodontitis Simplex, and Chronic Periodontitis Complex, is that the latter is ushered in by the Rarefying Pericementitis Fibrosa, this disease being lacking in the Simplex type. The chief clinical difference between the two types is that in Chronic Periodontitis Simplex, the progression of events is slower and the inflammatory reactions are usually milder. We may therefore omit further mention of this type.

As the salient feature of Lesion 2, of the Complex type, Box points out the almost universal tendency of the epithelium lining the crevicular surface of the marginal gingiva, to proliferate and extend apically along the tooth surface. When pocket formation occurs, the soft tissue which has become separated from the tooth, is usually covered with a layer of epithelial cells of varying thickness. Occasionally the soft tissue becomes separated from the tooth before the epithelium has proliferated sufficiently to cover it. Also ulceration may take place with a loss of the epithelium previously formed. But even in such cases, there is a very evident tendency for the denuded soft tissue to be soon covered with epithelium. Box states that upon weighing the findings in the examination of over 600 sections, he is forced to the conclusion that the typical pocket exhibits a fairly complete epithelial covering on the crevicular surface of the soft tissue. This tissue is therefore not in a constant state of ulceration, as has been taught by Arthur Black. It is but natural to ask whence comes the pus which is found in these cases exuding at the gingival margin. This question is answered in a section showing pus forming in the interior of the soft tissue, and apparently passing between the cells of an intact epithelium into the pocket.

Box does not state how far this epithelium is capable of protecting the vascular tissue from the invasion of bacteria and toxic substances found in the pocket. It is safe to assume, however, that vascular tissue so covered is afforded some degree of protection as compared with tissue whose surface lacks epithelium. With the elimination of infection from the connective tissue, the epithelium covering it may be assumed to afford some degree of protection against further bacterial invasion from the pocket. The demonstration of the almost universal presence of epithelium over the crevicular surface of the soft tissue, then, in cases exhibiting pocket formation, is a very important feature of Box's recent work. Its clinical significance is tremendous, since it removes at once

one of the chief arguments in favor of extensive cutting away of gingival tissue in these cases.

When pocket formation takes place, the cementum becomes denuded. It has been claimed by Black, that the cementum under such circumstances is "pus-soaked" and that reattachment of soft tissue to it becomes thereby an impossibility. Box states that "There is no microscopic evidence to show that in the average case the cementum is penetrated deeply by bacteria." That such penetration may take place is, of course, a fact, and he shows photomicrographs of such a process. These sections evidently represent a carious or pre-carious condition, however, a condition seldom in evidence in a pus pocket.

Around the question of the possibility of reattachment there has raged a more or less heated controversy. There were not a few who claimed that reattachment had been accomplished and offered clinical evidence to back their claims. Seldom have patients for whom this has been accomplished, been willing to part with teeth so successfully treated. A group of dentists in San Francisco have secured clinical reattachment in the mouths of life prisoners in San Quentin prison, and have then removed the teeth with surrounding soft tissue and sectioned them. Photomicrographs of these sections so far offered have been disappointing. It has, however, fallen to the lot of the writer to have secured a reattachment of soft tissue in a case of deep pocket formation in 1911, and to have removed the tooth with adjacent soft tissue in 1920. This tooth with its reattached tissue has been prepared and sectioned by Box. Photomicrographs show most clearly that reattachment has occurred in this case, and therefore settle conclusively the controversy on this point.

Treatment given in this case may be outlined briefly as follows: The tooth, which has deep lingual and labial pockets, was immobilized by a band splint, and the occlusion relieved by grinding. Following preliminary scaling of exposed surfaces, the denuded cementum in the pockets was thoroughly curetted. The patient was instructed in the use of the tooth brush, and a mild antiseptic wash was prescribed. Emphasis is to be laid on the immobilization secured by the splint and the relief from excessive occlusal stress obtained by grinding, careful and complete removal of deposits and stimulation by the brushing. During the year following the treatment of this case, it was shown as a clinic on reattachment at a meeting of the Alumni Association of the Dental Department, University of Buffalo, and examined with a probe by a number of prominent Buffalo dentists. There was no denial of the reattachment, but much speculation as to its nature. In 1920, the other teeth in this patient's mouth had, through neglect, gotten into a condition requiring complete extraction. This tooth, which still retained some

of its reattached tissue, was removed and sent to Dr. Box for sectioning.

It shows two types of reattachment, one of epithelium, the other of connective tissue. It is evident that the pocket was almost completely lined with epithelium, and when healing took place, this epithelium attached itself to the cementum. The mechanism of attachment is not clear. But the fact that a very tenacious attachment has taken place, is attested by the fact that adherence of part of the epithelium to the cementum was maintained in spite of a tear which occurred parallel to the tooth surface during manipulation. Even more interesting is the part of the section in which the reattached connective tissue is shown. Here, again, the manner in which the attachment has taken place is not clear. The fact that it is reattached tissue and not connective tissue which has been severed from the tooth, is proved by several points. These are briefly: the connective tissue fibres run parallel to the tooth instead of at an angle to the surface; there are no cementoblasts; there are no epithelial cords; the wavy outline of the cementum indicates that its surface has been curetted; new cementum has been formed at one point.

While the attachment of both epithelium and connective tissue to the tooth seems to be so intimate as to be adequate to the task of excluding mouth fluids and bacteria from the former lesion, it seems probable that the connective tissue attachment is the one to be preferred. Connective tissue has a more natural affinity for cementum, and may be expected to become reattached more readily than epithelium. The possibility of new cementum being formed by the reattached tissue to cover possible excavations or irregularities left by instruments, makes it desirable also that this type of reattachment take place. From this standpoint, then, it is apparent that it might be better if there really were no epithelium in a pus-pocket as A. D. Black claims. Moreover, the next problem in the treatment of these cases may be found to centre around the search for a method of removing this epithelium without injury to the underlying connective tissue.

Another section of Box's paper deals with the various changes in the periapical tissue which are the result of infections of pulpal origin. No new theories are propounded, but a series of granulomata, etc., are presented as rounding out the story of the pathological changes to which these tissues, as a part of the periodontium, are subject. The photomicrographs of these lesions, as, in fact, all of those shown, excite admiration for their clarity and definition.

Professor G. R. Anderson, whose knowledge of the physics of light has been so important a factor in the making of the remarkable photomicrographs of Dr. Box's sections, has contributed an article dealing with another phase of physics, viz., the Mechanics of Occlusion. This

is a brief but lucid exposition of this very important subject, in which the relative stresses on the different teeth are considered.

The concluding section of Dr. Box's remarkable contribution is one dealing with the "Signs of Incipient Periodontal Disease." Because of the fact that Rarefying Pericementitis Fibrosa in its initial stages is not recognizable by any test at present available, he has sought out all the signs which will permit an early diagnosis of this condition. These are presented in a clear and concise manner, and constitute one of the most valuable parts of this paper. Every dentist should have this list of diagnostic signs at his chair, and should consult them frequently as he examines his patients' mouths.

And now, what of the clinical significance of this presentation? Is it to be simply a gallery of exquisitely prepared specimens, which we shall sententiously discuss, and promptly forget when we go back to the chair? Box, although himself an able clinician, forbears extended clinical comment on the sections shown, contenting himself with stating the facts as revealed to him by the microscope. To the present commentator, however, greater liberty may be permitted.

Let us approach this phase of our subject from the standpoint of etiology. Chronic Periodontitis Complex, which is the most common and the most destructive of the major periodontal diseases, is inaugurated as a rarefying pericementitis fibrosa. We have here two cardinal points: first, as far as has been demonstrated, this disease is not inaugurated by infection; second, the nature of the rarefying process, and the location of the regions undergoing rarefaction, point inevitably to a local mechanical factor, excessive occlusal stress, as the outstanding etiologic factor. When we see, for instance, bone being absorbed on the side of the alveolar wall which faces the tooth, and which is thus chiefly acted upon by pressure from the tooth, we are forced to conclude that systemic causes, even if present, are decidedly secondary in their nature. Or when we see the bone between the roots of a molar, with osteoclasts producing rapid bone absorption on one side, and osteoblasts* giving evidence of only slight activity on the other side, we are hard put to it to explain the unequal distribution of the bone absorption on the basis of atrophy, or an imperfect approximal contact, the presence of a crown band, or calcareous deposits.

The fact that infection enters the picture in the second lesion of Chronic Periodontitis Complex, does not alter in any essential the etiologic importance of traumatic occlusion, especially as the alveolar rarefaction, which begins in Lesion 1, continues to advance in exactly

*Box states that the present belief is that osteoblasts may either lay down bone or absorb it, according to the nature of the stimuli acting on them. Osteoclasts are always destructive in their action.

the same manner as it did before the advent of infection. The same comment may be made in the more advanced phases of this disease.

But this is not all. Rarefying pericementitis fibrosa precedes inflammation of the gingiva in many cases. Also the resulting rarefaction may have superimposed on it a gingivitis, which will result in a wasting away of the marginal gingiva. What shall we say, then, of the etiology of gingivitis and gingival recession? It seems obvious that many of those cases have their inception in traumatic occlusion, the infection again being secondary as a causative factor.

Another matter brought out by Box which has great clinical significance, is the fact of the almost universal proliferation of epithelium covering or tending to cover the soft tissue in the pocket. While the photomicrographs show evidences of infection in the interior of the connective tissue even when covered with epithelium, it is evident that the infective process is usually of a fairly mild character,—in other words, held within bounds, as compared with that to be expected when this tissue is denuded of its epithelium, and therefore freely open to infection from the pocket flora. The result of treatment, then, even if no reattachment occurs, is to give nature a chance to throw off the infection, and to still further strengthen the epithelial barrier to the ingress of further infection from the pocket.

And finally, we have the indubitable proof that reattachment of soft tissue can occur, thus answering in the affirmative what was perhaps the first of the famous questions of dentistry, "Can pyorrhea be cured?"

In conclusion, let me once more express my unbounded admiration for this research by Harold Keith Box in the field of Periodontal Pathology. He has combined a rare gift for scientific research, a deep knowledge of general pathology and a clear clinical vision. He has thus presented to us the most reasonable and workable study of periodontal disease yet given to the clinician, and at the same time the most satisfying delineation of periodontal pathology yet offered to the worker in pure science.

The Best Way to Serve Humanity



THE EARL OF BALFOUR, in opening the New School of Bio-chemistry at Cambridge University, asked a most pertinent question: "How many are there who realize that the best way to serve mankind is so to master the secrets of Nature that Nature turns her forces to our benefit instead of, as too often happens, turning them to our destruction?"

The Occlusion Concept in Periodontology

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ERIODONTOLOGY is the science that deals with the diseases of the periodontal tissues. As in medicine and other sciences, it passes in its progress through periods in which certain theories govern for a time. Research and practice, as a rule, are carried on along the same general lines. With a change of opinion, consequent on improved methods of investigation, a new era is ushered in, the length of which is dependent upon its influence and utility. Scientific investigation of periodontal disease was initiated in a period in which methods of research were dominated by a structural pathology and from the outset was under its sway.

The present may be considered as the beginning of a period of physiological or functional influence. To-day our interest is being centred on the functions of the teeth, and especially the functions of their supporting structures; on the fact that the health of these supporting structures is, in a large measure, dependent upon normal function; and also that departure from normal function renders possible the initiation of the early lesions of periodontal disease.

It must be emphasized, that, in turning to the studies of function, a study which is making possible great advances in the treatment of periodontal lesions, there is a danger of neglecting an adequate understanding of structure. The correlation between function and structure, in periodontal pathology, is of the utmost importance in the final conception of the whole.

A knowledge of the functions of the teeth and their supporting structures combined with a viewpoint of their normal and pathological anatomy has led to the truth that great regenerative processes are possible. A consequent change of opinion has taken place as to the possibility of improvement and obliteration of disease processes when proper measures are taken. But, of paramount significance especially from the standpoint of preventive dentistry, it is manifest that deranged function is one of the most important primary factors in the etiology of periodontal disease.

The chief function of the teeth and their supporting structures is a mechanical one, the comminution of food into small particles preparatory to assimilation in the digestive tract. The teeth and their supporting

structures, therefore, may be regarded as a mechanism, the normal function of which is dependent upon perfect co-ordination of the teeth in every contact relation.

When any tooth is subjected to occlusal stress and there exists a harmonious relation between the tooth and its supporting periodontium, there is presented to us the ideal picture of physiological occlusion. There is present, as a rule, an excellent co-ordination of jaw with jaw and tooth with tooth, but of paramount importance is the compatible relationship existing between the tooth and its surrounding tissues. The tooth is a rigid body held in its bony alveolus by a thin but firm fibrous membrane. This interjacent soft tissue is known anatomically as the pericementum and has an abundance of blood-vessels which anastomose with those of the alveolar process, gingivæ, periosteum and alveolar mucosa. When a stress is exerted upon a tooth, it is transmitted to and resisted by the periodontal tissues. The main mechanical factor in this resistance is, of course, the alveolar bone. There exists a state of co-ordination when the periodontium is able to withstand the forces of occlusion without the initiation of pathological changes in the pericementum.

Physiological occlusion may therefore be defined as a condition in which the systems of forces acting upon the tooth during occlusion are in a state of equilibrium, and do not and cannot change the normal relationship existing between the tooth and its supporting structures. This normal relationship depends upon the pericementum and implies that it shall be of normal thickness, normal arrangement of its component structures including blood-vessels and nerves, and upon its inherent resiliency.

In order to understand this natural relationship between a tooth and its periodontium, it will be necessary to recall certain fundamentals of mechanics. Anderson* states that simple machines are devices used as a rule to secure a mechanical advantage, which means that a small force acting through a longer distance may produce a large force acting through a shorter distance. These machines are the lever, the pulley, the wheel and axle, the inclined plane, the wedge and the screw.

The lever is a very important machine and one which must be thoroughly understood to comprehend the mechanics of occlusion. Though the lever is usually a straight bar free to rotate about a support called the fulcrum, it may take other forms. Straight levers are sometimes divided into three classes according to the relative positions of the point of application of the effort, the resistance and the fulcrum. A

* G. R. Anderson, B.A.Sc., M.A., Professor of Engineering Physics, University of Toronto, and Professor of Physics, Royal College of Dental Surgeons of Ontario, Toronto.

lever of the first class is one in which the fulcrum is placed between the effort and the resistance. According to Huxley,¹ in the human body, the following parts present examples of levers of the first class, viz.: (a) the skull in its movements upon the atlas, as fulcrum; (b) the pelvis in its movements upon the heads of the thigh-bones, as fulcrum.

A lever of the second class is one in which the resistance is placed between the fulcrum and the effort. Huxley gives the following as an example of a lever of this class, viz.: the raising of the body upon the toes in standing on tiptoe and in the first stage of making a step forwards. Here the fulcrum is the ground on which the toes rest; and the effort is applied by the muscles of the calf to the heel; the resistance is so much of the weight of the body as is borne by the ankle-joint of the foot which lies between the heel and the toes.

A tooth situated in its alveolus and in occlusion, frequently furnishes a good example of a lever of the second class. This was pointed out as far back as 1912 by Oppenheim² of Vienna. In this case, the fulcrum is the periapical tissues upon which the tooth-apex acts; the effort is the stress delivered by the opposing tooth and is applied to the crown; the resistance is offered by the alveolar crest and associated alveolar and pericemental tissues.

The first condition of equilibrium is satisfied when the resultant of all the forces acting upon the tooth is zero, and the second condition of equilibrium is satisfied when the resultant of all the torques acting upon the tooth is zero.

The chief forces acting upon the tooth in occlusion are the pressure produced by the opposing tooth and the resistance of the periodontal tissues. These must balance. The pressure produced upon a tooth by an opposing tooth is either in the direction of the long axis or oblique thereto. In the first case, there is no tendency to produce a torque, and the pressure against the tooth is balanced by the resistance of the periodontal tissues. When a stress is exerted upon a surface and is not perpendicular to that surface, it may be resolved into components perpendicular to and along the surface. The first is called the normal component and the second, the tangential component. The resultant of these components is called the resultant stress. Thus, in the second case, the tangential component is along the axis of the tooth and the normal component at right angles to it. And similarly the pressures of the supporting tissues may also be resolved into pressures in the direction of the axis and at right angles to it. Then for equilibrium, the forces along the

¹ Thomas H. Huxley, LL.D., F.R.S.: *Lessons in Elementary Physiology*.

² Albin Oppenheim: Tissue changes, particularly of the bone, incident to tooth movement.

axis will balance, and the forces at right angles to the axis will also balance.

Anderson defines torque as the value of a force to produce rotation around a given axis. It is measured by the magnitude of the force multiplied by the perpendicular distance from the point of application.

Its direction depends upon both the direction and point of application of the force. When a force is exerted upon a surface of a tooth and is not perpendicular to that surface, the magnitude of the torque produced by the initial force is the product of the normal component and the perpendicular distance from the axis of rotation to the line of action of that component. The magnitude of the torque produced by the resisting crest and associated alveolar bone, and acting in the opposite direction, is the force represented by this resistance multiplied by the distance from the axis of rotation to its line of action. When equilibrium is present, the resultant of these torques is zero. In other and perhaps less technical words, the tendency of the normal component of the initial force acting upon the tooth, to produce rotation about the axis of rotation, the apex, is just balanced by the tendency of the resisting crest and associated alveolar and pericemental structures to produce rotation in the opposite direction, about the same axis of rotation.

When the torque produced by the working force, the occlusal stress, is balanced by the torque produced by the resisting force, the periodontal stress, and the compression upon the pericementum is such that pathological changes will not be initiated, there exists a state of physiological occlusion.

This is the condition that the conscientious practitioner must strive to preserve if present, and to establish if absent and within the realm of possibility. Physiological occlusion and periodontal stability are interdependent phenomena. The presence of occlusal equilibrium appears to be closely interrelated with the existence of a certain equilibrium among the pericemental tissues, manifested, in part, in the functional equilibrium of these tissues, which is maintained by the increase and reduction of the various functional units; and, in part, in a mechanical equilibrium of these tissues revealed in their normal characteristic arrangement and in the recognized average thickness of the pericementum. Physiological occlusion, therefore, permits the tissues to remain in a healthy and quiescent state wherein they are able to resist harmful influences of various kinds which bring about pathological changes in them; and its establishment is the first fundamental requisite in the prevention and treatment of periodontal disease. The restoration of physiological occlusion through operative procedures is termed equilibration.

Certain factors are found which either singly or collectively, bring about a condition in which the applied torque has produced a disturb-

ance of equilibrium or is likely to do so. Such a state has been termed by Stillman³ traumatic occlusion, and is the most important division of the pathogenetic occlusions. Traumatic occlusion may, therefore, be defined as a condition in which the systems of forces acting upon a tooth, during occlusion, are not in equilibrium. Such disturbance of equilibrium seems to be a factor which invariably leads to or localizes structural changes in the tissues of the periodontium. These tissue changes are, as a rule, first exhibited above the clinical horizon by an increased radiolucency of the alveolar crest and associated alveolar tissue. This is followed by a change in the contour of these crests and a disturbance of their normal position as related to the gingival line, the amelo-cemental junction. The rarefying process frequently becomes initiated in the inner wall of the alveolar bone. In these instances, it is first manifested, radiographically, in certain zones by an increased radiolucency of the lamina dura. Through progression of the process of rarefaction, the lamina dura is destroyed. This alveolar loss is usually apparent in the radiograph and there is thus exhibited a definite widening of the pericemental space. Through consequent thickening of the soft tissue content between the tooth and the bone, there is permitted an increased mobility, beyond the normal, of the tooth in its socket. These profound structural changes which occur in the pericementum and alveolar bone have been minutely described by the writer, and termed Rarefying Pericementitis Fibrosa.⁴

Thus it is obvious that early detection of pathological changes necessitates a thorough knowledge of the structure of the periodontium, both in health and disease, and it would appear that the full significance of these first changes from the normal can be appreciated only through their correlation with the disturbed function of the parts.

Furthermore, loss of alveolar bone on the crest of the process by decreasing the distance between it and the axis of rotation at the apex, decreases the torque of the resisting force and, provided that the magnitude of the initial occlusal force remains the same, the conditions of equilibrium are, in consequence, increasingly disestablished. And there is abundant clinical evidence to show that there is a parallel relationship between the rapidity of this disestablishment and the rate of progression of certain types of periodontal disease.

³ Stillman: Traumatic Occlusion.—Journal of the National Dental Association, 1919.

⁴ Box: Studies in Periodontal Pathology.

Some Thoughts on Traumatic Occlusion

CHARLES E. SUTTON, D.D.S.



TRAUMATIC occlusion and gingival irritants are recognized as predominating factors in the etiology of periodontal disease. The ability to recognize these two factors and to eradicate them, will carry the dental practitioner far in the successful treatment of periodontal lesions.

Gingival irritants are usually fairly easy to recognize, and the technique required to thoroughly remove them may be mastered by any competent dentist. Traumatic occlusion on the other hand, is frequently difficult to detect. One of the chief reasons that it is neglected, in periodontal treatment, is the inability of the operator to recognize it. The recognition of the presence of traumatic occlusion, however, necessitates a thorough understanding of the subject. It may be said that the dentist who has learned to recognize it should find little difficulty in mastering the technique necessary for its eradication, where such a result is possible.

Traumatic occlusion seems to serve as the main factor, in the localization of the disease condition, Rarefying Pericementitis Fibrosa, so thoroughly described by Box. It will be recalled that this is a chronic and progressive lesion of the pericementum, which results in the rarefaction and destruction of the alveolar bone. This rarefying process begins as a rule on the inner wall of the alveolus, with consequent increase of the soft tissue content, between the tooth and the bone. Traumatic occlusion, therefore, is probably the factor of greatest influence, in the production of abnormal mobility of a tooth in its alveolus.

The dental practitioner, when abnormal mobility of the tooth has been established, faces the problem of restoring the condition of normal mobility. Abnormal mobility constitutes a sequela of disease, and must be given careful consideration, and skilful management. No single factor has the spectacular influence on mobility, as the relief of traumatic occlusion. Its beneficial action in this regard is greater than all other therapeutic factors combined. Traumatic occlusion is a functional disturbance, and is recognized to mean an abnormal distribution of stress exerted upon teeth during their use. This implies the placing of abnormal stress upon the pericementum, the thin fibrous membrane which lies between the tooth, and its supporting bone. The pericementum through its vulnerable anatomical position, between two very hard tissues, is peculiarly subject to disturbances of occlusal function, the majority of which are included in the broad meaning of the term, traumatic occlusion. The dentist is not so much concerned as to whether

the traumatic occlusion is a primary factor, induced by acquired conditions, such as inlays, fillings, crowns, partial denture attachments, and uneven wear, or whether it is induced by a pre-existing malocclusion. If malocclusion has brought about the traumatic occlusion, in the majority of cases, he is not concerned as to the cause of this malocclusion, or its treatment. The majority of his cases of periodontal disease are present in patients whose age renders impracticable the question of orthodontic procedures. The clear duty of the dentist is to determine whether or not it is possible to establish a physiological occlusion. If such is possible, it is his further duty to establish it. This procedure has been termed by Box "equilibration" because it implies the establishment of equilibrium of the occlusal and periodontal forces acting upon the tooth, in other words, the bringing about of a state of physiological occlusion.

The dentist when confronted with the presence of pocket formation, finds himself in much the same situation as that found when mobility has taken place. Regardless of how the pocket was formed, he has to face the issue of dealing with a definite, local, pathological lesion. When a pocket has been brought about, it calls for a definite management for that pocket, in order that its obliteration can be accomplished. In other words, regardless of what factors entered into the formation of the periodontal pocket, this lesion must be recognized as such, and receive definite surgical treatment. There has been a marked tendency on the part of the general profession to ascribe the causation of periodontal lesions of this nature to systemic disturbances. It must be recognized that this proneness has not been based upon scientific researches in etiology, but rather upon negative results following inadequate local treatment. However, a persevering minority insisted upon ascribing their failures to their inadequate understanding of the local etiological factors and upon their lack of skill to control them. Much research had to be undertaken, and progress was necessarily slow at first. A lack of an adequate knowledge of periodontal pathology was one of the main obstacles. After a considerable time and much effort, the combination of clinical observation and scientific enquiry brought to light certain fundamental truths. As a result, a spirit of optimism was injected into the whole subject of periodontology, and the small school of pioneers soon saw a great increase in the number of their adherents. It is an inspiring story of achievement for the benefit of humanity. And to-day we see these principles of periodontology being incorporated into a broader and better dentistry. The names of such pioneers as Stillman, McCall, Hutchinson and Box will always remain conspicuous for their persistence of efforts and high achievements in periodontal science.

A knowledge that systemic factors enter into the etiology of periodontal lesions is of little value to the operator, when confronted by definite local disease, as manifested in mobility and pocket formation. These can be eradicated only through the operation of proven fundamentals of periodontal therapeutics. It cannot be expected that general systemic agencies, such as the use of a balanced or special diet, improved general elimination or vaccine-therapy, can take the place of and give the results achieved through scientific dental and periodontal surgery. The dentist without a knowledge of these essentials is bound to find his efforts of little avail in his attempts to control mobility and to bring about pocket obliteration.

The subject of periodontology is manifestly a practical one; as in medicine, it can be taught successfully only in the clinic, and it is realized that the dissemination of knowledge concerning a phase of periodontology such as traumatic occlusion is necessarily bound to be slow. One obstacle in the pathway of a better understanding of the traumatic occlusion concept is the inexactness in the use of the term traumatic occlusion. This term is frequently used to-day in a more or less indefinite way. When used in this superficial manner, its counterpart may be found when the terms "pyorrhea" and "periclasia" are used in place of the more precise and scientific nomenclature of modern periodontal pathology. The term traumatic occlusion is even used as a synonym for malocclusion; an error of this order is inexcusable and reveals a lack of appreciation of the cardinal principles of periodontal physiology.

While the writings of a few keen observers as far back as a hundred years ago show that abnormal stress was recognized as a potent causative factor in the loosening of teeth, yet no circumstance has been so influential in focussing the attention of periodontists upon this factor as the creation of the term traumatic occlusion. For this the profession owes Stillman a debt of gratitude. Probably no man has done so much, both by writing and teaching, to interest the profession in this rediscovered principle. Perhaps his greatest service has been the effect of his influence and encouragement upon the course of Box's investigations. Stillman is a man of forceful and magnetic personality, and his unselfishness and burning zeal for the welfare of his profession and service to his fellow man had a profound influence upon the young researcher at a critical period in his career. Box set aside his investigations in caries and periapical lesions and concentrated upon problems in periodontology. His researches have been conducted along fundamental lines and have displayed originality of thought and persistence of effort. Dr. McCall has commented upon "his rare gift for scientific research"; Dr. Stillman has spoken of his "characteristic

caution"; Professor Joseph Graham has noted in him "the restraint of the born investigator"; and Dr. O'Neill, "an enthusiasm only excelled by his mental energy."

The writer sees in Harold Keith Box those rare qualities, a grim tenacity of purpose and infinite patience, attributes so essential to the true researcher, and it is a safe prediction that in addition to his achievements of the past, he will be responsible for other outstanding contributions to science.

In the present issue of ORAL HEALTH there is to be found an article by Box, entitled "The Occlusion Concept in Periodontology." This presentation, though brief, is a fine example of pioneering in periodontal science. While the practice of periodontia is essentially an art, it is nevertheless founded upon science and such contributions as "Studies in Periodontal Pathology" and "The Occlusion Concept in Periodontology" constitute the very corner-stones of that science. It is upon the basic principles outlined in these articles that the superstructure of periodontal art must be constructed. The writer feels that these studies will richly repay the most thorough and repeated consideration and ventures to state that an appreciation of these fundamentals will resolve for many practitioners, as it has for the writer, the main problems in the treatment of periodontal lesions. An understanding of the essential principles will constitute an adequate foundation for the complete building of success in the practice of modern periodontology.

Borderline Pulp Problems

HAROLD CLARK, D.D.S., TORONTO.



THE ablest graduate in dentistry is not long in practice till he is confronted with the responsibility of deciding what to do with one or other of these perplexing problems. More and more the profession shrinks from sacrificing the vitality of a tooth pulp if any means are available to preserve it alive.

Every practitioner of experience develops or adopts the use of some methods, agents or technique upon which he learns to rely in the care of these cases. As briefly as possible I shall try to outline the technique and agents that I have found valuable in over thirty years' experience with these troublesome conditions.

First of all let me enumerate and, where necessary, give formulae of the agents used:—

Thymol—Ordinary thymol crystals reduced to a fine powder in a mortar,

Benzo-Balsam Varnish.

Pure Gum Benzoin, 30 parts by weight.

Canada Balsam, 30 parts by weight.

Thymol, 5 parts by weight.

Chloroform—enough to dissolve the ingredients to a watery consistency.

Oxy-sulphate of Zinc.

For the powder—

White oxide of Zinc, one ounce.

Chrome Yellow, one grain.

Burnt Sienna, three grains, mix thoroughly in mortar.

For the fluid—

Make two solutions (a) and (b)

Solution (a) Saturated solution of Zinc Sulphate.

Solution (b) 12 grains of Boracic Acid in one ounce of water.

For the working solution add one part sol. (b) to three parts sol. (a).

The purpose of the Boracic solution is to control the speed of setting.

The most perplexing borderline pulp problem is probably the immature tooth with so much decay that thorough removal will surely expose the pulp; and anyone who has tried to remove this type of pulp knows how close it comes to the absolutely impossible. In such cases I have for many years used the following method:—

Avoid all shocks, thermal or otherwise. Remove all soft decay that doesn't approach the pulp. Wash the cavity with tepid water. Dry with cotton but not with hot air—it might make it ache. Then mix a filling of oxy-sulphate of zinc rather thin. Before mixing incorporate in the fluid laid out for the filling enough pulverized thymol crystals to make it into a thin cream. Then mix in the powder same as for any cement filling. Just before inserting lay the soft mass on the palm of the left hand and spatulate for a second or two to raise the temperature to that of the hand and thus reduce shock on insertion. Leave this in for two or three days. Remove carefully and excavate still more carefully taking no chances of exposing the pulp. If necessary leave a thin mat of degenerated tissue over the pulp but excavate the rest of the cavity thoroughly. Now fill the cavity half full of oxy-sulphate of zinc and thymol as before. Finish with a veneer of amalgam, silicate or other hard filling. Make a note in your records that this filling is to be removed in one, two or three years. If all has gone well nature will have laid down sufficient secondary dentine to make it safe to do thorough work in cavity preparation.

Sometimes in a deep cavity a healthy pulp is inadvertently exposed.

If one were to lay oxy-sulphate of zinc filling against the exposed pulp however gently it would be so irritated by the contact of the particles of Oxide of Zinc that a hopeless ache would be set up. This can usually be obviated by first evaporating several coats of the Benzo-Balsam varnish over the exposure. This forms a skin that is bland, aseptic and stimulating. A thin mix of oxy-sulphate with thymol laid gently over the exposure will make a floor upon which a thicker and stronger mix may be laid. In cases of this kind I like to finish the contour of the tooth without any metal filling for a few months to avoid all thermal shocks.

There is one other borderline condition that I may crowd into the remaining space allowed me in this paper. We now and then encounter teeth, usually with large metal fillings, that have become unbearably sensitive to thermal extremes. Even to draw the breath against it is unbearable. To the eye the tooth looks to be in very good condition. The recent history of these cases usually reveals a series of thermal shocks such as ice-cream and hot coffee, etc. Anyway, there seems to be a serious pulp congestion and it is unendurably sensitive. My practice in these cases is to remove all metal fillings; evaporate two or three coats of Benzo-Balsam varnish on the floor of the cavity. Fill the cavity a third or a half full with oxy-sulphate of zinc and thymol; then restore the contour of the tooth with oxy-phosphate of zinc and leave for six months. In almost every case a comfortable tooth and a grateful patient are the immediate result. At the end of six months remove filling; revarnish cavity; insert oxy-sulphate and thymol, leaving sufficient room for a strong veneer of metal filling. No further trouble with the tooth is probable.

Cavities so sensitive that the patient can't let the operator remove any of the debris may be very satisfactorily handled by simply washing out the cavity with warm water, drying with cotton and filling for a day or two with oxy-sulphate and thymol. At the next sitting the almost entire absence of sensation in preparing the cavity will be an agreeable surprise to the operator who has not used the agent for this purpose before.

The cases described are only a few of the many useful applications of the above agents. Many others will suggest themselves to the practitioner as he uses them.

In conclusion, one or two points about Benzo-Balsam varnish might be noted. Its non-conducting and adhesive properties make it a valuable lining in the great majority of cavities. Blow cold air in a prepared cavity before and after an application of the varnish and no further proof of its non-conductive properties is needed. Varnish on cotton is the equal of any anodyne for an aching tooth.

Canadian Dental Association



It has been a custom, for many years, to think of the opening days of a new year as the appropriate time for making plans. As we look forward through the open doors of 1925, we cannot help but feel that there is a new spirit of optimism in the air, that conditions are more hopeful than at any time during the past decade; everywhere there is a feeling of expansion. What should we, as members of a vocation which has sprung almost overnight from the status of a mechanical art to that of a great profession, do in order that we may advance in the van of this forward movement?

We are apt to forget that in Canada we have a Dental Association which, in point of area covered, is one of the greatest in the world, and which is, at the same time, sadly handicapped by the number of dentists in this area, as compared to that of other great national dental associations. If we are to make our Association the power it should be, each one of us should do his bit, in order that we may overcome our disadvantages.

The Canadian Dental Association has had a record in the past which is a standing tribute to the men who saw the vision and to those who helped put it into effect. But, are we satisfied to rest on what has already been accomplished? Can we not make a new resolution this month, more permanent than most New Year resolutions, that each one of us will lend a hand to advance the work and further the interests of the Association, so that new standards of achievement may be set.

Have you some original material, either in paper or clinical form, which will be ready in time for the 1926 Meeting? Or, perhaps, you know someone else who has. Have you some ideas which you think would make the meeting more interesting? Let us hear from you at once; it is not too early to start working now for the success of our next Meeting.

We will be able to report to you from month to month, just how our plans are coming along. No matter where you are in practice, in Sydney or Victoria, in Dawson City or in Niagara, or somewhere in the vast stretches between, this is your Association. Will you not, then, help to make it bigger, better and a greater force for the advancement of our professional ideals?

Plan now to include Halifax in your 1926 trip, and take in the C. D. A. Meeting.

J. STANLEY BAGNALL,
Secretary, Canadian Dental Association,
34 Larch Street, Halifax, N.S.

The Ontario Dental Convention

FRED J. CONBOY, D.D.S., CHAIRMAN BOARD OF GOVERNORS,
ONTARIO DENTAL ASSOCIATION.

PLACE—*The Hart House and Arts Building, University of Toronto.*

TIME—*May 26 to May 29, 1925.*

PROGRAMME—*The best that can be secured, regardless of cost.*

SPECIAL ARRANGEMENTS—*The entire Hart House placed at the disposal of the Association, together with the Residences, which will accommodate two hundred and forty members.*

SPECIAL FEATURES—(1) *The College "At Home."*
(2) *The Annual Dinner Dance.*
(3) *The big "Dental Masonic Night" at one of the city lodges.*
(4) *Class and Fraternity Reunions.*
(5) *Golf Tournament.*
(6) *Two Dinner Meetings, with prominent speakers and entertainment.*



E are delighted to be able to report that we have succeeded in securing the Arts Building and Hart House, University of Toronto, for our clinics and exhibits, and for our general meetings, dinners, etc. The accommodation will be ample and ideal for all the activities of the Convention and will be far superior to that of other years.

* * *

Your Executive has found it necessary to change the time of the Convention, but we believe the change will prove beneficial in every way. The examinations at the University close on Saturday, May 23rd, and up to that date the buildings are used by the students. When the University closes, the staff at the Hart House is reduced, but as our Convention follows immediately, the full staff will be retained and every part, department and activity will be at our disposal. The twenty-fourth of May falls on a Sunday, and the holiday will be celebrated on the Monday; this will give the out-of-town men, who so desire, the opportunity to spend the day in Toronto or to use the holiday in motor-ing to the city. The Woodbine races will be in full swing, and many other special attractions will be provided for the holiday week, so that all those who attend the Convention will not only spend a profitable time, but also one which will prove most enjoyable.

The Association will be required to pay only a nominal fee for the accommodation at the University and Hart House, and this will mean a great financial advantage. We have a large balance from last year's Convention, and this, with the decreased cost of accommodation, will provide more than enough to secure the best essayists and clinicians available for our programme. What we are saving in accommodation we intend to spend on the Convention Programme, and this means that outstanding men will be secured. We are planning to make this the best year in our Association, and we hope to bring to the Dentists of Ontario the latest and best in connection with certain branches of our work. We are already in touch with many of the leading men in the United States and Canada, and when the completed programme is presented, we feel sure that it will meet with your whole-hearted approval. Your Board of Governors would be pleased to receive suggestions from any members of the profession, who have in mind certain features which they would like to have presented, or would like to recommend an essayist or clinician.

* * *

Our good friend, Doctor Weston Price, has consented to give us two lectures, and the following letter indicates the character of the work which he will cover. Dr. Price needs no introduction to the Ontario Dentists, and the announcement of his presence at our Convention will be received with great satisfaction and delight.

WESTON A. PRICE, M.S., D.D.S.,
Dental Research Laboratories, 8926 Euclid Avenue
CLEVELAND, OHIO, November 28, 1924.

Dr. John A. Bothwell, Secretary-Treasurer, Ontario Dental Association, Toronto, Ontario, Canada.

My dear Dr. Bothwell:

I have your kind invitation to address the Ontario Association at the opening of your annual meeting, May 17. I am just working out my schedules for May and embarrassed by the fact that a number of the Associations who have extended invitations and whom I would like to favor, have dates either conflicting, or so nearly so, as to make it very difficult to make connections. I have a very large number of friends, however, in Ontario, for whom I have a very keen interest, and I find myself strongly tending to give them favorable consideration.

If I do come to Ontario, I would feel that it would be very unfortunate for me to disappoint the men by having so limited a presentation that I could only present to them research data, indicating why our old interpretations are no longer tenable, without being able to give them the practical applications suggested by the new interpretations. In other

words, I should give at least two lectures of about an hour and a half to two hours each to cover the work properly.

Would it be your wish to have me cover the work thus more thoroughly, using two lectures on two different days? I shall of course desire to adapt myself to your wishes. However, I know from experience, that a single lecture will be unsatisfactory to your men. The important newer data are now so voluminous and interrelated, and are so informing, that it is very difficult, if not impossible, to harmonize our former methods of practice with them.

Yours very sincerely,

WESTON A. PRICE.

* * *

Nearly all visitors to Toronto are anxious to see Hart House and those in a position to judge freely express the opinion that it is unique and one of the best Institutions of its kind in the world. Many of the Dentists of Ontario have not had the privilege of enjoying its advantages and will gladly accept the opportunity to spend a few pleasant and profitable days within its walls. All the facilities have been placed at the disposal of our Association, and the Entertainment Committee can arrange many novel and interesting features during the time of the Convention.

The Students' Residences will provide sleeping accommodation for about two hundred and forty, and these rooms will be available to those in attendance at the small cost of five dollars for the entire time. The rooms will be allotted to those who desire them in the order of registration. If a sufficient number so desire, the authorities at Hart House will serve breakfast and supper to those in residence.

* * *

The Annual College "Home Coming" will take place on Tuesday night, the details in connection with this important event will be announced later.

Mrs. W. B. Amy has kindly consented to convene a committee to take charge of the arrangements for the Dinner Dance. It will be held on the Wednesday night and no effort will be spared to make this social function an unparalleled success. Hart House, with its large dining-room and fine dancing floor in the gymnasium, provides an ideal home for such an event.

* * *

For some years a number of the men from outside the city have expressed a desire to attend a city Masonic Lodge during the time of the Convention. Last year we found it impossible to arrange for a regular meeting, but a number attended an emergent meeting in connection with

University Lodge, and had a most pleasant time. The Craft Club (Dental-Masonic) is now making provision for a "Dental Night" at one of the lodges on the Thursday evening of the Convention; the various chairs will be filled by members of the profession, and a very enjoyable time is anticipated. The Secretary of the Craft Club will be pleased to supply further information upon request.

The Class and Fraternity Reunions will be held as usual; accommodation for these functions can be secured at Hart House. The big Association Reunion Dinner, when all the members will be seated at tables according to the year of graduation, will take place on Wednesday, at 12.30. A fine time will be provided.

Golf Tournament bigger and better than ever.

Walter Thompson has charge of the entertainment. Enough said.

Great credit is due Gus Kennedy for the arrangements in regard to Hart House. Gus has given many years (so many I hate to tell) of valuable and faithful service to the Association. His work may not be conspicuous, but he always planned and carried out the arrangements for accommodation in a most painstaking and dependable manner.

* * *

The Craft Club is well under way and is co-operating with the Oriental Club, a similar organization, formed by the Dental Students four years ago. The chief activity of the Club will be to arrange for the Masonic Meeting on the Thursday evening of the Convention, but other worthy projects will be undertaken. Dentists desiring information or wishing to register, kindly communicate with the President, Dr. W. H. Coon, 22 College Street, or the Secretary, Dr. Fred. J. Conboy, 1043 Bloor Street West.

* * *

A number of manufacturers have already made application for exhibit space. Having changed the place of meeting, it was necessary to prepare new blue prints, showing the exhibit space available. These, with all the information needed, will be sent to the dental manufacturers and supply houses at the earliest possible moment.

* * *

You have just received your new appointment book. We could not complete the arrangements for the Convention in time to have the Supply Houses mark off the Convention dates in your book, but you can do it just as well. Turn over the pages to the month of May, and to the twenty-sixth to twenty-ninth, and write in: "No appointments; will be at the Ontario Convention." DO IT NOW!

* * *

I have just received a letter from Doctor C. N. Johnson and, while

it contains a personal reference which I do not deserve, yet greatly appreciate, it is primarily meant to convey a message of gratitude and goodwill to the Dentists of Ontario. As any account which I might give of the letter would utterly fail to carry to the profession the feelings of love and loyalty so beautifully expressed by Doctor Johnson, I am publishing the letter exactly as it left his pen. It is gratifying to realize that one as busy as Doctor Johnson continually remembers our little act of gratitude and appreciation, and that at this time, when he has so many to consider, his thoughts turn in loving solicitude to his many friends in Ontario. There can be no greater evidence of a great soul than the manifestations of gratitude, loyalty and goodwill.

"He is the soul of goodness
And all our praises of him are like streams
Drawn from a spring, that still rise full, and leave
The part remaining greatest."

Chicago, Ill., December 28, 1924.

My Dear Doctor Conboy:

At this blessed Yuletide Season I am impelled to do something that I have long wanted to do. I have wanted to write and tell you how much comfort and joy I have had in using the beautiful portfolio you so graciously gave me last May at the luncheon. It is one of the most useful presents I have ever had, and it serves so frequently to remind me of the great good-heartedness of the dear Boys of Ontario, and particularly of your own dear self. I cannot tell you how much I appreciate the kindly spirit which suggested it.

Wishing you a Happy New Year,

I am yours sincerely,

C. N. JOHNSON.

Handkerchiefs and Teeth



THE unsightly condition of the teeth of Queen Josephine is credited with the adoption of the handkerchief by those who, in those early days, wished to be strictly in the vogue.

Once handkerchiefs were taboo and no French person of culture would mention them, much less exhibit them in public places. But when Josephine came to the throne and used the handkerchief to conceal the deplorable condition of her teeth, all the court followed and handkerchiefs fluttered from the sleeve of every courtier, and trembled in the bosom of every lady-in-waiting.

Canadian Dental Hygiene Council



O bring about a greater interest in Dentistry as a public health measure and to co-ordinate all of our methods along the lines of Oral Hygiene, the Canadian Dental Hygiene Council has been formed. A new departure is the inclusion in our Council of some prominent public-spirited laymen, and it is the intention to add others from all parts of the Dominion.

The work accomplished so far has been mainly completing organization and outlining the field of activities. In order to co-operate to the fullest extent with Provincial Associations, by assisting them in what they are already doing, and helping them to extend their work, the following memorandum has been submitted to each Provincial Association, so as to arrive at the best basis for linking up the several bodies to prevent overlapping.

The Canadian Dental Hygiene Council reaffirms the right of each Provincial Association to control the Dental educational work of its Province.

In order to ensure uniformity and the greatest measure of co-operation, the Canadian Dental Hygiene Council considers it desirable that the Provincial Oral Hygiene Committees (appointed from time to time by the Provincial Association) act as Provincial units of the Canadian Dental Hygiene Council, and be known as the Branch of the Canadian Dental Hygiene Council.

The Canadian Dental Hygiene Council conceives its work to be as follows:

- (1) "Interesting the public and the Dental profession in Oral Hygiene as a health measure.
- (2) Establishing a central bureau in charge of a Field Officer, and the collection and preparation of educational material in the form of leaflets, pamphlets, posters, lantern slides, and films, and making these available for educational work.
- (3) Assisting in every way possible, the work of the Provincial Oral Hygiene Committees."

This proposal is now under consideration by the Provincial Associations, and they have been asked to make suggestions as to how the Council could best assist them in their local problems.

It is felt that the importance of our work justifies an appeal to the Federal Government for a grant, and action has already been taken to bring this matter before the Premier and his Cabinet Ministers. Strong representations will be made at the next session of the House, and it is hoped that favorable consideration will be given. This must be backed up by the active support of every dentist in the country. If this is some-

thing you believe in, and feel the need of, you can do your part by bringing it to the attention of your Federal member. Much money has been granted by Parliament to promote public health education, but up to now, nothing has been done to promote public dental health. The importance of our cause, the great need of our work, and the many demands for assistance amply justify our claims. Appeals will also be made for funds to philanthropic individuals and bodies, as well as to business organizations. An appeal has already been made to every dentist in Canada, and we again emphasize the importance of every dentist doing his bit, for he well knows that Dentistry is entitled to a place in the very front ranks of Preventive Medicine.

President—General, the Honorable S. C. Mewburn, K.C., Hamilton, Ontario.

Vice-President—Mr. E. E. Reid, London, Ontario.

Chairman of Executive—Dr. W. C. Trotter, Toronto, Ontario.

Secretary-Treasurer—Dr. E. A. Grant, Toronto, Ontario.

* * *

MINUTES OF THE CANADIAN DENTAL HYGIENE COUNCIL.

Toronto, Ontario, October 7, 1924.

THE first general meeting of the Canadian Dental Hygiene Council was held to-day, October 7, 1924, at the King Edward Hotel at 12 noon, General, the Honorable S. C. Mewburn presiding.

Present: Drs. Trotter, Seccombe, Col. Thompson, F. P. Moore, Broughton, Cowling, Bothwell, Eaton, Ross, Fisk, H. S. Thomson, Conboy, H. Clark, Grant, Messrs. McNair and E. E. Reid.

The meeting was opened with introductory remarks by General Mewburn, who told of his interest during the war in the work carried on by the Canadian Army Dental Corps, and that he was glad to be associated in times of peace with an organization carrying on a similar work.

The notice, calling the meeting, was taken as read.

Letters from J. E. Atkinson of the Star, and Dr. Devitt of Bowmanville, regretting inability to be present were read.

Secretary read the By-laws, clause by clause, there being no additions or changes suggested.

It was moved by Seccombe, seconded by Clark, that the Charter and By-laws be adopted. Carried.

Dr. Trotter presented a report of the Provisional Executive, which was adopted. A copy of this report is attached.

The secretary presented the financial statement which was adopted. A copy of this statement is attached.

Dr. H. S. Thomson outlined a scheme for a Dental Health Week. This was discussed by General Mewburn and Mr. E. E. Reid, who dwelt on the interest Life Insurance Companies are taking in any measures for prevention of disease and dissemination of Health Knowledge. He outlined the work of a committee of the Life Underwriters' Association towards this end that they are planning to ask the Insurance Companies to give financial support.

General Mewburn endorsed Mr. Reid's remarks, speaking from his experiences as Minister of Militia.

Dr. Seccombe also discussed the proposal.

Dr. Conboy moved that this meeting instruct the incoming Executive to take up Mr. Reid's suggestions with a view to doing everything possible to co-operate with similar social agencies to prevent overlapping.

The next order of business—election of officers.

Moved by Seccombe, seconded by Trotter, that General Mewburn be President and Mr. E. E. Reid be Vice-President. Carried.

Moved by Conboy, seconded by Clark, that E. A. Grant be Secretary-Treasurer. Carried.

Moved by Conboy, seconded by Broughton, that Thorne, Mulholland, Howson and McPherson be auditors to this association. Carried.

ELECTION OF EXECUTIVE COMMITTEE.

It was decided that the three officers be members of the Executive ex-officio and that the Provisional Directors be re-elected and that these nine add six more to their number to make the fifteen required by the By-laws.

Those to be added to be representative men from different parts of Canada.

There being no further business, the meeting adjourned.

E. A. GRANT, Secretary.

REPORT OF PROVISIONAL EXECUTIVE.

Mr. President and Gentlemen:—

The organization of a Council such as this was decided upon as a more comprehensive and efficient means of carrying on Oral Health work throughout the Dominion. This work in the past has been more or less spasmodic and scattered, having been carried on largely by the oral hygiene committees of the various Provincial Dental Associations. The work of these various committees was more or less local and lacked unity of purpose and scope, and also suffered from lack of adequate funds.

The C.O.P.A. was the only Dominion wide organization which attempted to carry on this work in a really large way, but, not being an official part of any dental association, it sometimes failed to receive the support it might otherwise have expected from these associations, but, on the other hand, it had the advantage of a continuous source of revenue from the royalties received from the sale of Hutax brushes and paste and was thus enabled to maintain an efficient organizer and instructor constantly in the field. It is now proposed by the organization of this Council to link together all the activities of all these committees and organizations in one harmonious whole to be governed by a combination of laymen, medical men and dentists and financed by funds donated by private individuals, dentists, dental organizations, commercial organizations or governments.

The C.O.P.A. has expressed a willingness to hand over the educational work it has been doing to this Council and also to assist it financially. It has also agreed to let this Council make use of the services of its publicity officer, Dr. Harry Thomson.

We would suggest the appointment of a committee of two or three men from this Council to negotiate some such arrangement with the C.O.P.A.

Your provisional executive has naturally had a great deal of organizing work to do in arranging for the charter and preparing the By-laws and preliminary prospectus.

This work was followed by efforts to enthuse the members of the dental profession on behalf of the Council and to an organized effort to secure a money grant from the Dominion Government.

Though this latter effort failed at this time partly owing to the unavoidable lateness of our campaign, yet we feel that we have sown good seed for future harvests.

A thorough discussion of ways and means of securing assured sources of revenue would be very helpful.

An endeavor should also be made to decide upon the most efficient and satisfactory method for carrying on our work of educating the public.

Dr. Harry Thomson is prepared to outline to the Council a plan for a proposed mouth health week in a city such as Toronto and we would welcome your candid criticism of same.

The Secretary-Treasurer will read a statement of our finances. We trust that every member will take an active part in the proceedings of this meeting and will not hesitate to ask questions. Humbly submitted on behalf of your provisional executive.

W. CECIL TROTTER, Chairman,
Provisional Executive Committee.

CANADIAN DENTAL HYGIENE COUNCIL.

Financial Statement.

RECEIPTS.

Contribution from Sir Edmund Osler	\$ 100.00
Dental Hockey Club of 1920, through Dr. A. D. A. Mason	200.00
Ontario Dental Association	1,000.00
From dentists in response to circular letter	179.55
	\$1,479.55

DISBURSEMENTS.

Legal expenses of incorporation	\$ 75.00
Government registration fee	15.00
Printing	150.45
Travelling expenses—(four trips to Ottawa)	127.05
Postage	37.00
Stenographic assistance	16.90
Bank discount and exchange	5.35
Balance on hand	1,052.80
	\$1,479.55

E. A. GRANT, Secretary-Treasurer,
CANADIAN DENTAL HYGIENE COUNCIL.

* * *

CONSTITUTION AND BY-LAWS—THE CANADIAN DENTAL HYGIENE COUNCIL.

MEMORANDUM OF AGREEMENT of the CANADIAN DENTAL HYGIENE COUNCIL, made this fifth day of February, one thousand nine hundred and twenty-four:

WE, the undersigned, hereby severally agree, each with the other, to become incorporated under the provisions of the Companies Act and amendments as a corporation without share capital and that the by-laws and regulations relating particularly to the organization and conduct of the Council shall be as follows:—

I.

NAME.

The name of this Association shall be "Canadian Dental Hygiene Council," hereinafter called the "Council."

II.

OBJECTS.

The objects of the Council shall be those set forth in the Letters Patent incorporating the Council.

The Council shall be carried on without pecuniary gain for any of its objects.

III.

MEMBERSHIP.

The members of the Council shall consist of the following:—

(1) The original incorporators thereof.

(2) The President and Secretary from time to time of such Provincial association or organization as may be recognized by this Council, together with such other persons as may be nominated by such Provincial association or organization to the number of five in the case of each of the Provinces of Quebec and Ontario, and to the number of two in the case of each of the remaining Provinces of the Dominion of Canada.

(3) Such persons as may be from time to time President, Secretary and—or Treasurer of this Council.

(4) The President and Secretary from time to time of the Canadian Dental Association and such other persons as may be nominated by such

Canadian Dental Association, to the number of nine, one representative from each of the Provinces of Canada.

(5) The representative or representatives of any affiliated association or organization which may be by resolution of the Council or of the Executive Committee hereinafter referred to, invited to appoint a member or members of this Council from time to time.

(6) Such other persons, associations or corporations as may by resolution of this Council or of the said Executive Committee, be invited to become members of this Council.

(7) Persons being members of this Council by virtue of their office shall be members while holding such office. Persons appointed by other associations or organizations shall be members until notice is received by the Council of the appointment of their successors. The membership of others shall continue until their death or resignation.

(8) Provided, however, that any member whose adherence is no longer desirable, may be retired by a two-thirds vote of those present and voting at a meeting of the Council or Executive Committee duly called for the purpose; said two-thirds, in the case of the Executive Committee, to include at least one-half of the total membership of said Committee.

IV.

MEETINGS OF COUNCIL.

(1) There shall be an Annual Meeting of the Council on such date (not later than the 30th day of June in each year) and at such place as the Executive Committee hereinafter provided for may direct.

(2) The business of the Annual General Meeting shall be to receive the annual reports of the business of the Council, to elect the Executive Committee hereinafter provided for, to appoint an auditor or auditors, who must be a chartered accountant, to settle the policy and budget of the Council for the ensuing year and to transact such other business as may be presented at such Annual General Meeting.

(3) Special meetings of the Council may be called at any time by the Executive Committee at the written request of thirty members of the Council, stating the objects of the meeting.

(4) Notice of all Annual or Special Meetings of the Council shall be given by mail, addressed to the members at their last known place of residence, as shown by the books of the Council; such notice to be mailed at least two weeks prior to the date of the meeting. The accidental omission to give notice of meeting to any member shall not invalidate the proceedings.

(5) There shall be held a General Meeting of the Council within one month after the date of the Letters Patent incorporating the Council, which shall have and exercise the powers of an Annual General Meeting.

V.

EXECUTIVE COMMITTEE.

(1) There shall be an Executive Committee of fifteen members to be elected by the Council at its Annual Meeting and shall include the President, Secretary and Treasurer of the Council.

(2) The Executive Committee shall take office and hold its first meeting at the close of the session of the Council at which it is elected, and shall hold office until its successor is elected. Casual vacancies in the Executive Committee may be filled by that Committee.

(3) The affairs of the Council shall be vested in the Executive Committee, and the Executive Committee may exercise all the rights, powers, authorities and privileges of the Council when the Council is not in session.

(4) The Executive Committee may appoint sub-committees to exercise such rights, powers, authorities and privileges as the Executive Committee may determine.

(5) It shall be the duty of the Executive Committee to present to the Annual Meeting of the Council a report of the work of the past year and a recommendation as to the policy and budget of the Council for the ensuing year.

(6) The first or Provisional Directors of the Council shall constitute and have the powers of the Executive Committee until the first General Meeting of the Council.

(7) The Executive Committee may appoint such officials paid and unpaid and incur such expenditures as it may deem advisable for the purpose of carrying out its work.

VI. OFFICERS.

(1) The officers of the Council shall include the President, Secretary and Treasurer and such other officers as the Council may from time to time elect.

(2) The Secretary shall have the custody of the seal of the Council and shall certify all documents requiring certification issued by the Council.

(3) The paid officials of the Council shall be employed by and be answerable to the Executive Committee and shall, in the absence of agreement to the contrary, be employed only during the pleasure of the said Committee.

VII. SEAL.

The seal of the Council shall be in such form as the Executive Committee shall determine.

VIII. FINANCIAL YEAR.

The financial year shall end on the 30th day of April in each year.

IX. AUDITORS.

One or more chartered auditors shall be appointed annually at the Annual General Meeting of the Council and all accounts and other records relating to the finances of the Council for its fiscal year shall, when presented to the Annual Meeting, be accompanied by a certificate and report of the auditor or auditors.

X. ALLIED ORGANIZATIONS.

(1) The Council may from time to time promote, organize and assist Provincial, local or other associations or organizations having objects altogether or in part similar to those of the Council and whether auxiliary to or independent of the Council, and whether incorporated or unincorporated, and may permit such associations or organizations to designate themselves by names indicating a connection with the Council without thereby becoming liable for the obligations of such associations or organizations.

(2) Upon the organization or recognition of any such association or organization it shall thereupon become entitled to the rights provided therefor in this by-law, but such recognition shall continue only during the pleasure of the Council, and upon a resolution being passed by the Council withdrawing its recognition of such association or organization, the rights of such association or organization hereunder including its right to a name indicating a connection with the Council shall thereupon cease and determine.

(3) Provided, however that no such rights shall accrue until the passing of a formal resolution conferring the same and then only on the terms and conditions of such resolution which terms and conditions may embrace any matter or thing whatsoever deemed advisable by the Council.

XI. FUNDS.

The funds of the Council shall be raised by Government grants, donations and subscriptions from individuals or organizations.

There shall be no fee charged for membership in the Council.

XII. BANK ACCOUNT.

The Bank Account of the Council shall be kept in such Bank as the Executive Committee may from time to time determine, and all cheques, drafts, acceptances, promissory notes or other negotiable instruments made or given in respect thereof, whether by way of overdraft or otherwise, shall be signed on behalf of the Council by such persons or officials as the Executive Committee shall from time to time determine.

XIII.

EXECUTION OF DOCUMENTS.

All documents requiring formal execution by the Council shall be signed and the seal of the Council affixed thereto by the Secretary, the Chairman and—or such other persons or officials as the Executive Committee shall from time to time determine.

XIV.

REGULATIONS AND AMENDMENTS.

(1) Provided the same do not conflict with this by-law, the Executive Committee may pass such by-laws, rules and regulations as it may deem necessary or advisable for the general conduct and management of the business affairs, property and estate of the Council.

(2) These by-laws and any additions hereto or amendments hereof may be amended at any annual or special meeting of the Council duly called for considering the same, and may be amended by a two-thirds vote of the members present and voting without notice, but any such variation or amendment shall not be in force or acted upon until the approval of the Secretary of State for Canada has been obtained as provided by the Dominion Companies Act.

IN TESTIMONY WHEREOF we have hereunto set our hands and affixed our seals.

WITNESS:—

P. L. Grimshaw

F. A. Cook

F. A. Cook

F. A. Cook

F. A. Cook

F. A. Cook

F. A. Cook

S. C. Mewburn,
per John Row Marshall
his Attorney.

Arnold Denbow Alfred Mason.

Horace Eugene Eaton

Frederick Joseph Conboy

W. Cecil Trotter

Wallace Seccombe

Edmund Alexander Grant

Juvenile Jingle

Clean Fingers.

Dishes must be sweet and clean;
Mother's always looking
Lest there be a speck of dirt
Near her when she's cooking.

If the food must be so clean,
What of little fingers
That on cake and bread and pie
Very often linger?

Wash your hands before you eat.
Dirty fingers never
Should go near your nice clean food.
Won't you please remember?

DORA L. CAMERON.

Radio Talk

C. N. JOHNSON, M.A., M.D.S., D.D.S., CHICAGO, ILL.

Given at the Broadcasting Station WFAA, Dallas "News and Journal," November 11th, 1924, under the auspices of the Committee on Mouth Hygiene and Public Instruction, of the American Dental Association.

ADIES AND GENTLEMEN: I bring a message to-night from the great American Dental Association, numbering more than 34,000 members. It is very appropriate that the American people should hear from this Association, because of the important relation which the dental profession sustains to the health and physical well-being of the human family. When it is remembered that tooth decay is the most prevalent of all human diseases—when at least between 80 and 90 per cent. of the children in all civilized communities are attacked by this disease, it must be apparent that it becomes a matter of prime importance to every father and mother in the land, to say nothing of its vital relationship to the children themselves.

The significance of sound teeth and healthy mouths in the maintenance of good health is becoming daily more apparent, and the dental profession is not living up to its fullest function as a profession unless it spreads the gospel of dental hygiene till it is carried to every hamlet and home in America. There is nothing greater in the entire field of health betterment than to maintain normal mouth conditions.

The problem presented to the dentist of to-day is the age-old problem that has always confronted the profession of medicine when any particular disease has gained the ascendancy, and that is the problem of prevention. Not till the prevention of dental disease has become an established fact shall the dentist be able to hold up his head as a real benefactor to his race. And in view of the facts in the case, this is a somewhat harsh judgment to place on the profession, because after all, in the ultimate analysis of the situation, the dentist is not actually the one to achieve prevention. There is only one medium through which prevention of dental decay will ever be brought about, and that is through the efforts of the people themselves. The daily care of the teeth by the individual is a more important means to this end than the occasional care by the dentist. This occasional care happens to be very important—indeed without it most mouths which are at all susceptible

to dental disease would go straightway to ruin. If cavities occur in the teeth the patient manifestly cannot fill them himself, and if hard deposits form on the teeth they cannot be removed by the simple expedient of the toothbrush. The dentist must therefore come to the assistance of the people in any programme of prevention, but the real factor of greatest significance in any such programme is the attention given the teeth and mouth by the individual. What this particular care should be is a matter for the dentist to impart to the patient, and in every dental office in the land this information is available for the asking.

One of the chief functions, therefore, of the proper practice of dentistry is an educational one. We owe it to the people of this country that the best available information leading to the prevention of dental disease shall be freely given through every conceivable source within our power, and to this end it is significant that this the greatest dental organization in the world to-day is devoting much of its energy to discovering the best medium through which the people may ultimately be relieved from this most prevalent scourge of humanity. And the people may rest assured of the fact that just as rapidly as we learn something significant and of value to them in the way of health conservation, that information will be passed freely on to them by all the sources at our command. These sources will be through the medium of health articles in the public prints, by lectures before teachers, nurses, mothers, and civic organizations, and most intimate and effective of all through concrete instruction given the patient in every private dental office in the land which is conducted by a member of the American Dental Association.

The fact should be driven home to the consciousness of the people that this organization, with all its myriad details, is not being primarily conducted for the benefit of the dental profession. If this were the case it would not be worthy of the respect of all good citizens—it would merely express a species of selfishness. The real object of all our endeavors is to further the welfare of the people in all those problems with which we are most intimately associated. Unless we can bring to the people of America some concrete benefit as the result of our deliberations, we shall have failed in the fruition of the real mission for which we were organized, and for which we have functioned for more than sixty years.

We therefore invite, on behalf of the earnest men and women who make up our membership from one end of the land to the other, at least a sympathetic interest in our organization on the part of the people as a whole, for whose benefit we have so long endeavored to labor.

It has conservatively been estimated that dentistry can add ten years

to human life, and we believe that this is no visionary picture, but an actual fact. Granted that this be true, it can come about only by the closest and most cordial co-operation between the people and the dental profession. We on our part are willing to devote our best energies to bring this about. We stand pledged in our professional faith never to rest nor relax till such time as this "hell o' all diseases" is wiped from the consciousness of human kind. The question is, will the great American public respond by giving us the privilege of accomplishing this signal service for their benefit?

In extending a greeting from our 34,000 members, I express the hope that every one of our dear friends of the radio world may sleep peacefully to-night undisturbed by the pangs of an aching tooth.

The Young Practitioner

 R. HAROLD M. HAYS recently presented in *Doctor and Patience* a word picture of the average young medical graduate striving to establish himself in practice. In the foreword, Dr. Hays says that the "book is in no way a personal experience. It is a composite picture of the lives and experiences of many of the author's medical confreres. It has been the purpose of the author to show how a young man, just starting in the practice of medicine, can have certain ideals, stick to them and still be successful. It is the common experience of many a young man, to launch in the practice of medicine, full of love for his fellowman and with the highest intentions to practise medicine for the good of humanity. He feels that the sordid interest of making money should be given secondary consideration. But he soon finds out that he is bucking against the world, and that, often, the men by whom he is surrounded are measured by the worldly goods which they can show. But making good, honest money should not detract from one's ideals. Everyone has a right to live, and the young practitioner of to-day, often starting out with a modest office, may have a head full of knowledge which he ought to be able to sell, but finds that he has to devise ways and means to make himself better known. The problem is: how is he going to do it? If he is an honest fellow, with a conscience and a pocket-book which is not at the starving point, he will philosophically rest content, realizing that the future holds much in store for him if he will but bide his time. It is as axiomatic in medicine as in other things, that success will come to him who has not too immoderate ambition and who is willing to show people that he can honestly deliver the goods.

There was a time, not so long ago, when the practice of medicine

was an art. It was shrouded in mysticism and the physician hid his personality in a long beard and a long black coat. He had to stand on his dignity. The profession was surrounded by a code of ethics which Hippocrates would find it difficult to live up to. But the veil of mysticism has been lifted and the physician now measures his intelligence against that of his patient. This has come about, mainly, by a more enlightened education of the public in medical matters. The majority of intelligent people know their inside anatomy, at least enough of it to want to know more if anything goes wrong. Moreover, they are acquainted with many of the newer methods of diagnosis and they want to go to the man who keeps up with the time. The physician has to think of his practice in terms of dollars and cents, more and more. He has to have the wherewithal to fit up an office decently, and there is only one place to get this wherewithal—from his patients. Parenthetically, it may be remarked that one who has been in practice for any length of time realizes that he would have to think far less of money matters, if all his patients treated him fairly. However, even with the necessity of making money, the doctor still looks upon his work from the idealistic point of view, and is only too willing to sacrifice his health, and sometimes his life, in doing what others would consider unremunerative work and for which he may receive only gratitude. Doctors are taught self-sacrifice from the time they enter the medical school, and they cannot get away from this early training, no matter how materialistic they may become."

While of special interest to medical practitioners, Dr. Hays' work will be read and enjoyed by many members of the dental profession. There will doubtless be a difference of opinion upon some of the ethical problems discussed.

Juvenile Jingle

Snow Flakes.

Who cut them out, I wonder so—
Those lovely, fleecy flakes of snow
That fall so softly to the ground
And never make a single sound.

Is there a kindergarten school
Where children learn to cut by rule,
Where they are taught to cut these flakes
So many and such different shapes.

How very clean must be the hands
Of children in those snowy lands,
For never once have they been seen
To send down flakes that were not clean.

DORA L. CAMERON.

Oral Sepsis in Children

HENRY S. DUNNING, B.S., M.D., D.D.S., NEW YORK.

[*This excellent paper by Dr. Dunning appeared in the New York Medical Journal and will doubtless prove of interest to the readers of ORAL HEALTH.—Editor.*]

THE mouth is the most unclean cavity, bacteriologically, with which we have to deal. It harbors over one hundred different varieties of bacteria and is subjected to greater trauma than any other region. Thermal changes in the form of food, hard and soft, medical agents, mechanical abrasion, and poor dentistry give the ever present bacteria plenty to do. On account of the conditions mentioned above, the buccal tissues, including the maxillary bones and mandible, often become infected. There are, generally speaking, three methods in which infections may enter the deep tissues of the jaws: first, the pericemental route, beneath the gingival flap; second, the intradental within the tooth, through the dental nerve, or pulp canal; third, the hematogenous. The first two avenues are increased by the number of teeth present. In other words, the more teeth an individual has the more susceptible he is to oral sepsis, for he has a greater line of defence to keep in repair. He has a larger area of gingival membrane to keep healthy, and he has more dental nerves or pulps that must be kept vital.

It is more difficult for the child to keep up his first line of defence against the enemy, infection, than the adult. The resistance, as a rule, is not so good, and in the mouth the dental organs are in the developmental stage, with many irregularities that provide comfortable living quarters for bacteria. For this reason the average child finds it hard to keep his mouth clean. He is handicapped. The adult may appreciate the importance of oral hygiene; the child does not. The adult can often visit a dentist; the child can, too, at times, but does he receive the proper treatment that he requires? This last question I shall try to answer later. For the reasons given above, oral sepsis in the child is most common.

St. John Steadman* states that eighty per cent. of all children suffer from oral sepsis, that it is the most common of all chronic diseases. He also believes that chronic disease in the child, the effects of which spread over a period of years, must have a profound influence on its mental and physical growth, and he shows that many systemic disorders are traceable to oral sepsis. He calls attention to the fact that anæmia,

* St. John Steadman, Lancet (London, 1920).

general mental and physical deterioration and loss of weight are due to unclean mouths. Colyer, in 1910, I believe, was the first to weigh children before and after the removal of infected teeth. He found that there was frequently a marked increase in the weight of a child after extraction, and that this increase was too great to be ascribed to normal increase due to the growth of the patient. Rapid increase of weight does not always occur after the removal of the diseased teeth, as there may be other foci of infection that would have the same effect as infected teeth. He explains the loss of weight by the fact that children do not sleep well when dental irritation or pain is present. He has many charts and case histories to show rapid increase in weight upon the extraction of septic teeth. He also says that proper mastication is lost, as the child will not use tender, painful, infected teeth,

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and either refuses much of his food or swallows it before it has been properly masticated. The dental condition has often interfered with the sleep of the child for months unless the mother is observant, for the child does not always complain. Colyer further explains the loss of weight by the fact that infected teeth cause gastro-intestinal disturbances, the main symptoms of which are gastric pain and diarrhoea of an offensive character. He also cites fretfulness, night terrors and loss of appetite, which result in marked pallor of the face. He says: "If you take thirty children arranged in three groups, ten with all their teeth present and both teeth and mouth perfectly healthy; ten with most, or all, of their teeth removed but their mouths otherwise healthy, and the remaining ten with septic teeth and inflamed mucous membranes, it will be easy for the trained eye, aided if you like by the scales, to pick out the third group of children but it will not be possible to separate the other two." He goes on to say that the average physician is apt to treat the patient for gastro-intestinal troubles first without paying much attention to the patient's mouth. He cites the case of a child who was treated for gastritis for eleven months by a physician who disregarded the fact that the little patient had two badly abscessed molars. The gastritis cleared up shortly after their extraction.

Dr. H. Walker calls attention to the effect of dental disease in nursing women. He says that in many instances the infant loses weight when the mother has septic teeth. He goes into this question in detail and has about two hundred charts of cases showing that the infants generally gain weight upon the extraction of the mother's septic teeth. Dr. Walker says also that it is important to see that there is no septic material in the child's food, and this can be done to a great extent by giving him a clean mouth.

Billings says: "The focus of infection which undoubtedly causes the streptococcus viridans bacterimia and chronic malignant endocarditis is often from an alveolar abscess." Of this we have had numerous clinical examples. Coincident cultures from the alveolar abscess and the blood have yielded strains of the streptococcus viridans. When these nascent cultures were injected intravenously into animals, typical endocardial lesions have resulted. Billings says, further, that the

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deeper the infection is seated in the tissue and the greater the pressure of the accumulative bacterial products, the larger the amount of absorption. The tissue in which the infection occurs is also important. Mucous membranes absorb easily. An abscess enclosed by bone gives little chance for infiltration or extension; therefore, the pressure is great and the bacterial products are absorbed readily.

On account of the fact that most deep dental apical infections are locked in the spongy vascular bone where there is poor drainage, I feel that dental infections often do more harm than infections of the tonsils, as the latter drain more freely. If there is a sinus, the pressure is decreased and the amount of absorption is diminished. When abscesses or other lesions discharge their exudates into the mouth, they reach different parts of the alimentary canal where a new focus may be formed, especially if the pus supply is long continued, but secondary lesions may in turn also become foci for further and more general infection. Such conditions must not be mistaken for primary causes, but should be removed so as not to prolong and intensify focal disease.

We may also have other conditions, such as pharyngitis, otitis media

and meningitis, formed through continuity of tissue. Some clinicians do not pay much attention to swollen submaxillary glands in children. Chronically swollen glands are a distinct detriment to the child. Such glands often remain large for a long time, become tender readily, and do not function as well as normal glands. Such glands are a handicap to the patient, and these damaged organs are likely to break down at a later date if untreated. We should find out from whence the infection comes and remove its source, whether it be in the tonsils, the teeth or elsewhere; they often come from the teeth. Lymph drainage of the teeth and jaws is important.

Cleanliness will prevent oral sepsis, but cleanliness in the average child is a hard thing to obtain and to maintain. Many children have a bad start as regards their teeth. Many mothers wash their children's hands oftener in one day than they do their teeth in a week, and I believe that dirty hands are less dangerous than a dirty mouth. It is a tedious and irksome procedure to clean the teeth of children; to obtain

"The average physician is apt to treat the patient for gastrointestinal troubles first without paying much attention to the patient's mouth."

the best results one must make a sort of game of it, and the parent must at times offer prizes for the cleanest teeth each week. The child must become familiar with the toothbrush almost as soon as the first teeth appear. The parents must see to it that the teeth are brushed carefully twice a day at least, and it is dangerous to leave it to the nursemaid, however trustworthy she may be. At an early age, say, three to four years, the child should be introduced to another nurse who, we hope, is going to reduce the amount of oral sepsis by one-half. The nurse I have reference to is the dental nurse, the majority of whom clean teeth much better than the average dentist, and can handle these little tots more easily than can mere man. Children should be taken to the dental nurse or the oral hygienist twice a year, and if this habit is started early they become so accustomed to the appearance of a dental office that it never holds any terrors for them.

Many believe that pyorrhœa can be prevented absolutely if patients receive early and regular treatment at proper intervals all their lives, and that dental caries can be prevented to a very great extent. It should be our endeavor to prevent dental nerves or pulps ever becoming infected. We should not allow teeth to become non-vital, for as yet a

vital tooth does not enter into the pathology of the mouth. We can prevent all these conditions in the children of the rich. It is being done every day. But what is being done for the poor? What kind of dentistry does a poor child in a large family get? He gets no preventive treatment, and is lucky if he gets to a clinic in time for extractions before he is in pain, and he is also fortunate if, when he gets there, he receives the proper treatment in a way that does not strike terror to his poor little soul and makes the operator forever his enemy. We need clinics and more clinics for children.

Our chief problem is what to do *now* to help the child. The treatment of these conditions is surgical. It takes considerable courage to condemn many teeth in a child, and I believe that most dentists lack this courage to a great extent. There is poor co-operation in this direction between the dentist and the physician. The physician sometimes orders teeth to be extracted and cannot get the dentist to perform the operation. He wants to wait until the "swelling goes down." It hap-

"Dr. H. Walker calls attention to the effect of dental disease in nursing women. He says that in many instances the infant loses weight when the mother has septic teeth and generally gains weight upon the extraction of the mother's septic teeth."

pens also that the physician tells the dentist to wait until the child "gets better." Neither is anxious at times to take the responsibility, and between the two there is nothing done until the infection has gained considerable headway and a good deal of damage has been done. A virulent tooth infection can cause much destruction in a short time.

Children as a rule take gas poorly, and few approve of this anæsthetic for very young children. I believe the open mask with ethyl chloride spray or ether with the tin mask is the better plan. Less nausea and vomiting will result if the anæsthstist is particular about the amount of anæsthetic used, and frequently the patient can be sent home in an hour or two. Deciduous teeth sometimes infect the permanent and great care must be taken to get good drainage for the erupting second teeth and to drain the surrounding bone and soft tissue. Care should be taken in extracting the first teeth not to injure the second teeth just below or just above, as the case may be. In closing, I wish to make a plea for a great dental infirmary in this city on the lines of the Eastman and the Forsyth clinics, where all kinds of preventive treatment can be given for these mouth conditions.



This Department is Edited by
THOMAS COWLING, B.A., D.D.S., TORONTO



TRAINING DENTAL STUDENTS IN MECHANICAL DENTISTRY.



HERE is a growing tendency in many of our schools of dentistry to emphasize the newer subjects such as bacteriology, biology, histology, etc., at the expense of the older departments which have been termed the "mechanical." Many practitioners, upon being urged to speak frankly of the prevailing conditions in dental education, will tell you that the training in mechanical work is inadequate; that many graduates show inability even when investing and packing dentures—work that is elementary in our training.

It has been argued that a graduate need not be unduly handicapped through inability to perform these mechanical operations, because he can employ others to do the work for him, but this is not a good thing. If the dentist himself is not fully trained in the mechanical part of his work, he is certainly incapable of directing others how to do it. There is a great deal of difference between a denture made under the direct supervision of the mechanically-qualified dentist and the denture left entirely in the care of a mechanic who deals with the articulation, selection of teeth, etc., as he sees fit. The purely mechanical and the purely artistic in dentistry are incapable of complete divorcement; that is, of course, if complete satisfaction is to be obtained. There is another point that does not seem to be sufficiently emphasized. The training of the fingers in the mechanical work is an excellent preparation for the operative work. Indeed, logically, the one should be made a compulsory preliminary to the other.

Mechanical training in grinding teeth, articulation, soldering, swaging; and, in general, the working of materials is a great help in determining their properties. As a result, the efficient mechanic will be able to choose the best metals, alloys, etc., when making restorations in the mouth.

FOOD AND HEALTH.

 HERE are few subjects that have aroused as much discussion as those dealing with the problems of food and health. It is also a fact that no subject has, perhaps, produced so many extremes of opinions. Frankly, it is impossible to quite disassociate these extreme verdicts from the suspicion of lack of knowledge of the true facts. Enthusiasm without adequate training is always dangerous, and especially so in matters relating to body health.

In an attempt to find the causative factors involved in dental caries, we have been directing attention, and quite properly so, to the influence of food upon dentition. We have grown enthusiastic about vitamins, although they represent something as yet unseen. Perhaps it is just as well for our enthusiasm that we cannot see these important ingredients of our food, for, here as elsewhere, "distance lends enchantment."

The importance of the influence of the accessory food factors (vitamins) in building up sound or defective teeth is generally conceded. It has become merely a commonplace to reiterate this claim. Yet there is some evidence of a new opinion regarding the real character of the vitamins. As an example of this we have the report of Dr. John Boyd-Orr, the Director of the Rowlett Institute, Aberdeen, as published in the *British Medical Journal*, September 20, 1924, in which he sets up the claim that many of the evil effects attributed to a deficiency of vitamins in highly-refined foods may be due to a lack "of correspondence between the mineral content of the diet and the mineral requirements of the body."

Dentists are particularly interested in this problem because of the close relationship existing between the body growth and dentition. At present our knowledge of this vital question is rather fragmentary and we are prone to come to hasty conclusions. This is very unfortunate. Let us keep an open mind with regard to these problems and do everything possible to aid in their satisfactory solution, for herein may be found the correction of many dental ills.

IMPROVING THE FEEDING BOTTLE.

UCH has been written concerning the deformities of the mouth caused by feeding-bottles with poorly designed teats, also the difference between the physiological movements when a child uses such a bottle as compared with those involved when feeding at the breast. The objection to many feeding bottles is two-fold in character: it does not permit of natural movements of the muscles, and also makes possible the extraction of the milk

too quickly. It is claimed that a child that is accustomed to the use of the ordinary feeding-bottle finds great difficulty when feeding at the breast, because the movements required are different.

Dr. Sylvan Dreyfus, of Lausanne, in an address before the European Orthodontological Society as reported in *The Dental Record*, claims to have perfected a new type of feeding-bottle which permits of the natural movements of the muscles, consequently aids in their normal development, and at the same time slows up the feeding process. From fifteen to twenty minutes' time is required to absorb the contents of the bottle equipped with the improved teat as compared with about five minutes under old conditions. The slower rate of feeding is claimed to be very advantageous, while the additional muscular movements required assist in no small degree the development of the lower maxilla.

In the discussion which followed the presentation of Dr. Dreyfus' paper much information of great value to dentists was elicited. Concerning the irregularities of the teeth and bottle feeding, Dr. Weinberger said that he had given this subject considerable study for many years. He did not think the bottle had a great deal to do with the condition of irregular teeth and allied mouth conditions; his studies in the maternity wards of different hospitals led him to believe that the origin was pre-natal, as he had seen hundreds of cases of children with a mesial relation of the jaws at birth which was clearly shown, by means of X-ray photographs, as existing prior to birth. The position in which the child was carried before birth was of great importance. The influence it had on the arrested or over-development of the face was not sufficiently realized. If the child's position were corrected by the obstetrician, and if it were turned into a natural position, arrested development of the mandible could be overcome. In most cases, however, the child was born with the deformity, and this had to be corrected after birth. It was not correct to blame the bottle for any deformity, because the deformity was actually there when the child was born. A suitable bottle designed as Dr. Dreyfus proposed would no doubt be of value in correcting abnormalities.

TEETH AND SEX.



THE results of extensive research by T. Dobkovasky (Leipzig), dealing with the possible relationship between tooth formation and sex confusion, are reported in December, 1924, issue of *The International Journal of Orthodontia*. This subject is rather an unusual one, yet possesses some points of interest for dentists.

The investigations were carried on in the Orthodontic Laboratory of

the University of Leipzig under the direction of Professor Pfaff. The patients examined were those who might commonly be called effeminate men and masculine women; the object being to determine whether the teeth are in any sense a secondary sexual characteristic, like the hair, the fat distribution, etc.

It is found that sex differences are normally present to some extent—thus males have much larger cuspid teeth than females. Again, the incisors of the male are larger than those of the female. The differences are less striking with the bicuspid and molars. So it is possible to speak, somewhat truthfully, of a male and female type of dentition.

The author of this research reports having investigated 132 cases of so-called homosexuality in which the sex was physically inverted irrespective of physical peculiarities. He selected for study those who also presented the physical habitus of the opposite sex. Accurate and elaborate control measurements of the incisors and cuspids of both jaws of 100 normal men and 100 normal women were made. Then similar measurements were made of a large number of markedly effeminate men. As a result of these comparative measurements, it is shown that the average size of the teeth of the effeminate man is intermediate between that of normal men and normal women.

The only apparent value of these findings is the somewhat remote possibility of forecasting the likelihood of a boy becoming effeminate during adolescence or of a girl developing into the virago type.

SOME PRECAUTIONS IN THE USE OF SILVER NITRATE.

NDER this heading *The Journal of the American Dental Association* directs attention to a possible misuse of silver-nitrate in dental operations. Too much has been expected from its use, with the result that frequently harmful effects have been noted. Deciduous teeth are frequently treated with silver-nitrate because of the difficulty experienced in removing the carious dentine. It has long been the idea that this method of treatment will arrest the progress of caries by the sterilization of the tissues about the carious area. This, however, does not always occur, because of the deep penetration of caries in deciduous teeth due to the high organic composition of the dentine. In most cases where the progress of the decay is marked, the use of silver-nitrate may become positively dangerous. Strong solutions will penetrate to the pulp and cause injury to it. It is a mistake to think that the removal of carious dentine by means of excavators and burrs can be supplanted by the use of silver-nitrate or any similar preparation.

THE CASTING OF GOLD DENTURES.



ANY dentists prefer cast gold dentures because of exactness of adaptation, although it is generally admitted that the cast appliance is not as strong, for a given amount of material, as the wrought or swaged denture. This fact is emphasized by Dr. F. E. Roach in his published report on Cast Dentures which appears in the July, 1924, issue of *Dental Digest*.

In this report it is pointed out that although the strength of the cast denture may be less than that of the wrought or swaged denture, yet it is possible to overcome this deficiency by a proper distribution of reinforcing material placed where the stress is great.

One of the most important factors in successful cast-denture work is the method of melting the metal. When gold is in the molten state it is rendered susceptible to oxidation, carbonization, volatilization and shrinkage. These dangers are rendered practically negligible when the metal is either swaged or wrought. In the latter case the only possible defect would be caused by insufficient or inadequate annealing, or from contamination of the precious metals with base metals in the die or counter-die.

Oxidation of metals is the common source of annoyance when casting into moulds. A low, slow heat, long-continued favors oxidation. Oxidation is most difficult to control when there are base metals in the molten mass. The oxides of these metals form readily and pass into the molten metallic mass until it becomes freely impregnated with them. Accompanying this condition, there is the tendency of the molten mass to absorb gases; a condition commonly referred to as occlusion. These gases are liberated when the mass solidifies giving rise to pits or craters on the surface of the metal. It is found that metals have a sort of selective quality for certain gases. For instance: silver occludes oxygen in large quantities; palladium has a preference for hydrogen, absorbing about 800 times its own volume and retains it unless heated again in a vacuum. Platinum, especially in the spongy form, also absorbs large quantities of hydrogen, though not as much as palladium. Fortunately, the base metals do not exhibit this property of occlusion to any great degree, but they offset this advantage by their ease of oxidation. The sluggishness of metals when cast may be attributed to both of these causes.

To counteract the property of occlusion in the noble metals, some base metal that has an affinity for the gas is usually added. For instance: when casting silver, a little copper is alloyed with it (coin-silver), zinc is also used for this purpose. Oxidation is best prevented by using the proper flame in the torch or furnace and also by covering the molten mass with a suitable flux.

Many alloys undergo deterioration when being melted, due to the volatilization of some of the constituent metals. This is the result of using too intense a flame for too long a time. As a result certain of the constituents are actually burned out. Silver, copper and zinc are easily removed in this way. Platinum, and indeed the platinum group metals, readily deteriorate, becoming brittle, when in contact, in a molten state, with silica. Care must be exercised in selecting the crucible in which these metals are to be melted. A dental alloy is, or rather should be, a perfectly balanced alloy, prepared with the view of augmenting the good qualities of the constituent metals used. The alloy should represent a mixture of metals in a definitely balanced relation. Any disturbance of this relation must, of necessity, alter the properties of the alloy. Indeed, it may readily become unsuited for the purpose it was intended. Such a disturbance of balance and of properties may readily be caused by mixing alloys, so that it is impracticable to use the residual portions of different alloys when making up a new one.

Apparently the only method of overcoming the shrinkage in metals which occurs when the metal passes from the liquid to the solid state, is to cast large pieces in sections and then solder these together.

COCAINE ADDICTION.



IN a paper by Prof. W. E. Dixon, read before the Society for the Study of Inebriety, many points of general interest were treated and some items of especial value for dentists were emphasized.

It is shown that as a rule $\frac{1}{4}$ gr. of cocaine produced little effect and $1\frac{1}{2}$ gr. is well tolerated by ordinary persons. The fatal dose varied from 8 to 23 gr., but as with many other drugs which act upon the central nervous system, the effect of cocaine in different individuals is uncertain. Death is due to shock from sudden paralysis of the central nervous system, for while the effect of a small dose is to stimulate, overstimulation by a large dose produces the reverse effect—namely, paralysis. Death is always due to sudden absorption of the drug; when measures are taken to render absorption slow, as by the use of a tourniquet, the alkaloid is apparently absorbed locally to a great extent. This is the reason for the addition of adrenalin to cocaine solutions for local anaesthesia; the principle is a good one, though adrenalin actually adds to the toxicity of the solution when it is absorbed rapidly. Cocaine is much more dangerous in strong than in weak solutions, for the latter favor innocuous absorption into the tissue colloids. Tolerance to cocaine can be rapidly established by practice, so that a dose of 20 gr. can be taken without ill-effect after a month. This tolerance is confined to man; animals show no such possibility. Contrary to popular

opinion, the cocaine habit is comparatively easy to cure, for even when 10 to 30 gr. a day has been taken the drug may be completely cut off at once without any ill-effects, whereas a similar withdrawal in the case of heroin addiction would certainly jeopardize life.

The dental surgeon may perhaps rightly assume that a cocaine addict will tolerate a much larger dose of cocaine by injection than would an ordinary patient.

COMPULSORY DENTISTRY.

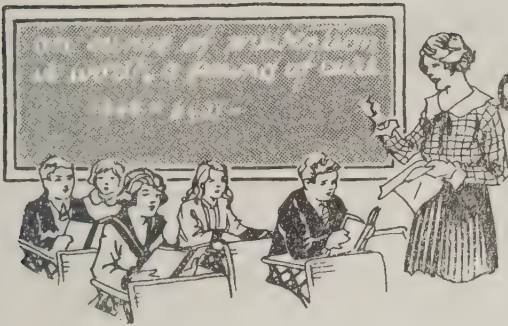


WRITING to *La Semaine Dentaire*, Dr. Ch. L. Quincerat expresses the opinion that compulsory dental treatment is quite as essential as is compulsory physical training for the youth of his country. It is not sufficient to produce a well-developed body; the aim should be to produce a healthy one.

A mouth that displays the loss of teeth, or the possession of teeth that are liberally supplied with filling materials, is evidence of lack of efficient care. "Is not a mouth with a fine arch of teeth, clean and well arranged, a treasure to a woman, a sign of cleanliness and health?" asks Dr. Quincerat. The wonder is that so much attention is given to the development of physique and so little time to dental hygiene. The time has come when governments should recognize in a tangible way, the efforts of the dental profession to correct the present condition of dental service. Dental treatment should be made obligatory from early youth onwards. The duty of a self-respecting government is to enforce its opinions on this subject upon the attention of both parents and children. To say that the children have not the time for this work, or that the parents cannot afford to have it done, is but side-stepping the issue, for, says Dr. Quincerat, "Kings have married shepherd maids before now!" Good teeth greatly enhance the opportunities for betterment in the youth of our land.

It is not to be expected that all young persons will appreciate the importance of mouth hygiene. Many would rather buy trinkets and ornaments than a tooth brush. This is due to immature judgment. Unfortunately, when the age is reached when true valuation is given these things, it is then too late to make amends. The teeth have been lost. It is for this very reason that our governing bodies should make dental inspection compulsory for our youths. In later years appreciation of such care is sure to be shown.

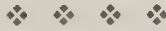
To be truly effective, dental inspection must comprise the smallest as well as the largest schools. Our small schools now possess a gymnasium for the development of muscle and chest; they should also be provided with dental clinics. In this way the youths' general health will be aided and in many instances tuberculosis warded off.



School Dentistry

This Department is Edited by
EDMUND A. GRANT, D.D.S.

*Director of Dental Services—Department of
Public Health, City Hall, Toronto*



RAL HEALTH, in devoting a section to the important subject of School Dentistry, aims to encourage its extension and development throughout the country. It is intended to publish reports of work carried on by established services, articles on methods of procedure, and suggestions that will help those who would like to see a dental service established in their own community, but do not know just how to start. Children's dentistry has developed into the specialty of Pediadontia, and it is hoped to present the latest teaching in operative treatment.

School dental service is to-day an accomplished fact and is accepted in most large centres as a necessary part of their community health activities. But those who are familiar with dental history of the last ten or fifteen years know the long struggle carried on by the profession before public recognition and support could be secured. While much still remains to be done, we can, as a profession, feel gratified at the strides that have been made.

England and New Zealand have fairly comprehensive services under Government auspices, and the United States have their Forsythe and Eastman Infirmaries and services established in many other centres, notably Bridgeport, Conn.

In Canada, Toronto was one of the first cities on the continent to make a move in this direction, when Dr. W. H. Doherty was appointed School Dental Officer in 1911. The growth of the service to its present proportions is largely due to the strong support of Dr. C. J. Hastings, Medical Officer of Health, who has the broad vision to realize the importance of preventive dentistry as a health measure. A report of the work carried on by this service during 1924 is published in this issue, mainly because it was available, but work is carried on in many other centres also, and it is hoped that reports of such work will also be sent in for publication. In this way we can all improve our methods and perhaps evolve a standard method of procedure. Such information will also be valuable to those who are endeavoring to establish a dental service where none at present exists.

It is interesting to note that in its beginning the movement was generally called "Dental Inspection," whereas to-day the term "Dental Service" is more often employed. This is a better term,—it shows the movement has grown and developed beyond the stage of merely examining children's mouths, and this is followed by active treatment to remedy the defects. Many found the term Inspection irritating; it implies something vexatious, an interference with one's personal liberties, and something to be resented. Service has a larger meaning.

* * *

THE DENTAL HYGIENIST.

S the dental hygienist needed in Canada? The movement started over ten years ago by Dr. Fones in Bridgeport, Conn., has spread rapidly in the States.

Training courses have also been established in connection with the Forsythe Infirmary at Boston and the Eastman at Rochester, so it would appear that the dental hygienist has gained a footing across the line and has come to stay.

An interesting development has occurred in the Hawaiian Islands. A Mrs. Carter, wife of a former Governor, has provided an endowment fund of \$1,000,000 for the building of a large children's dental clinic and training school for dental hygienists. They are to receive their training free and are then obligated to go into public service. Their salaries will be paid by the State, which in 1923 voted \$75,000 for this purpose. They are not allowed to take positions in private dental offices.

In England, at the present time a controversy on the merits of this question is agitating the Profession. Since the Ministry of Health recently authorized the employment of "Dental Dressers" in School Dental Service for the purpose of cleaning and polishing teeth, applying and removing temporary dressings and charting work under the supervision of a dental officer, it is felt that the medical health authorities will attempt to extend and develop their field of work. New Zealand has also authorized dental dressers, but the movement is meeting with considerable opposition in Australia.

In Canada, we have preferred to go slowly in this matter, and no doubt it is much wiser to get school dental service firmly established on a proper basis first. While the hygienist might be a valuable auxiliary, we do not believe that her work alone would be sufficiently effective as a preventive measure. A school dental service, to be successful, should have the dental examination and the teaching of oral hygiene carried out by qualified dentists, and these should be supplemented by an adequate amount of reparative dental service.

However, it cannot be denied that many dentists do not like giving prophylactic treatments and, strange to say, neglect this important part of their work. In the report of the Toronto School Dental Service, in this issue, it may be noted that only 8,740 prophylaxis treatments were given, although 48,140 children were attended to.

There can be no doubt that regular and frequent prophylaxis treatments would be a factor in prevention of dental caries and also of considerable value in stimulating the child to cultivate habits of oral cleanliness which would follow him through life.

Possibly it might be an advantage to have dental hygienists to do this work, especially if their field of work was specifically outlined and they were limited to public service. It would be interesting to hear the views of others on this question.

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DEPARTMENT OF PUBLIC HEALTH, TORONTO.

ANNUAL REPORT OF DENTAL SERVICE, DEPARTMENT OF PUBLIC HEALTH, TORONTO, 1924.

Charles J. Hastings, M.D., Medical Officer of Health,
Edmund A. Grant, D.D.S., Director of Dental Service.

THE Dental Service in the Toronto schools is one of the many health activities conducted by the Department of Public Health.

The staff consists of a Director, and thirty-one dental officers, four of whom are on full-time duty and the remainder on half-time. The service aims to make a dental examination of every child during the school year, and to instruct them on the care of the teeth and the importance of mouth health. As a result of the report sent to the parents, many children are treated by the family dentist and in addition the Department conducts twenty-eight clinics in the schools.

Dental Survey in Public Schools.

This is conducted by three dental officers who devote their whole time to this work. The examination is very thoroughly made, using mouth mirrors and explorers. On completion of each class, a fifteen-minute talk is given on the care of the teeth, and a leaflet given to each child. Through the kindness of the Oral Hygiene Committee of the Ontario Dental Association, their film, "Tommy Tucker's Tooth," has been shown in a number of schools, and has aroused a good deal of interest.

Summary of Survey.

Number of children examined	65,997
Children with defective teeth	42,206
Percentage with defective teeth	64%
Classroom talks	1,635

In the Separate Schools, the survey work is done by the regular staff of four dentists, who suspend their clinic work for a period of a month or six weeks until this is completed.

Number of children examined	9,895
Children with defective teeth	7,371
Percentage with defective teeth	74%
Classroom talks	254

Grand Total.

Number of children examined	75,892
Children with defective teeth	49,577
Percentage with defective teeth	65%
Classroom talks	1,889

It may be noted that the percentage of those having defective teeth is higher than shown for the last two or three years. This may be accounted for by the following reasons:—

- (1) The more thorough examination.
- (2) The Dental Service was not increased this year, although the school population is reported to have increased by about 3,000.
- (3) Owing to the financial depression, fewer cases are being sent to the family dentist.

Nineteen Operative Clinics in Public Schools.

(This also includes summer clinics in the Preventorium for two weeks, Victoria Park Forest School for six weeks, and High Park Forest School for one month).

Summary of Work Done.

Extractions of Deciduous teeth	16,796
Extractions of permanent teeth (6-year molars)	621
Local anaesthetics	8,600
Amalgam fillings	34,175
Cement fillings	13,191
Temporary fillings	3,842
Prophylaxis treatments	7,298
Arsenic devitalizations	652
Root treatments	3,005
Root fillings	883
Other treatments—relieving pain, silver nitrate, opening abscess, etc.	16,466
Number of patients treated	37,025
Number of patients completed	22,699

Four Extraction Clinics in Public Schools—

Summary of Work Done.

Extractions of deciduous teeth	15,376
Extractions of permanent teeth	2,527
Local anaesthetics	8,476
General anaesthetics	1,224
Number of patients treated	6,178
Number of patients completed	1,600

The Dental Service in the Separate Schools is carried on by four dental officers in five clinics situated in the schools.

Summary of Work Done.

Extractions of deciduous teeth	4,489
Extractions of permanent teeth	410
Local anaesthetics	1,474
Amalgam fillings	4,362
Cement fillings	3,314
Temporary fillings	212
Prophylaxis treatments	1,442
Arsenic devitalizations	45
Root treatments	206
Root fillings	54
Other treatments—relieving pain, silver nitrate, opening abscesses, etc.	410
Number of patients treated	4,937
Number of patients completed	2,803

Grand total of work in both Public and Separate Schools.

Extractions of deciduous teeth	36,661
Extractions of permanent teeth	3,558
Local anaesthetics	18,550
General anaesthetics	1,224
Amalgam fillings	38,537
Cement fillings	16,505
Temporary fillings	4,054
Prophylaxis treatments	8,740
Arsenic devitalizations	697

Root treatments	3,211
Root fillings	937
Other treatments	16,876
Total number of operations	149,550
Total number of patients treated	48,140
Total number of patients completed	27,102

Brief Summary.

Number of children examined	75,892
Number with defective teeth	49,577
Number treated in school clinics	48,140
Number completed in school clinics	27,102
Number of operations performed	149,550

Cost of the Service.

The sum of \$56,000 was allocated by the City in 1924 for this Service—made up as follows:—

Salaries of Dental Officers	\$39,672.00
Salaries of Dental Assistants	9,982.00
Other services	1,357.00
Supplies, dental and otherwise	3,750.00
Equipment and maintenance	1,239.00

Complete figures of expenditures are not yet available, but it is known that they do not exceed this amount and there may be a small balance.

Comparing this sum of money with the school population of 90,792, and the amount of work done, some interesting figures will be noted:

(1) Cost per child—60 cents; or, estimating the cost of the dental survey at 10 cents per child, we would have:—	
75,892 examinations, costing	\$ 7,589.20
149,550 operations at 32 cents	48,410.80
	\$56,000.00

When it is considered that the education cost for 1924 was \$84.00 per child, this small additional amount would seem worth-while expenditure, bringing, as it does, recognized benefit in better mouth health among the children and consequent mental improvement.

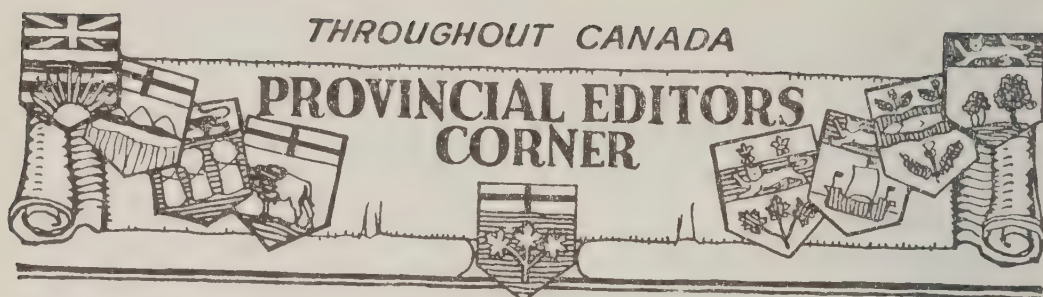
Confidence



OR every injury men suffer from others, through excessive confidence and trust, countless injuries are self-inflicted through suspicion and mistrust.

The harm that another is likely to do to any man, against his will, is not to be compared to the injury any man may do to himself through the trio of dark attributes of ignorance—unfounded suspicion, prejudice, hate.

When men nourish suspicion they squander their vitality, both of body and of soul—when they welcome the promptings of prejudice they rob themselves of a share of the best things of life. And, when they take up hate, whether in secret or banded with others, they assume a burden that grows heavier, day by day, until, from sheer weariness, they abandon it for the fruitless thing it is lest it crush them.



British Columbia—Ray H. Wilson, D.D.S.
736 Granville Street, Vancouver.

Alberta—JOHN W. CLAY, D.D.S.
914 Herald Bldg., Calgary.

Saskatchewan—C. W. PARKER, D.D.S.
Imperial Bank Bldg., Regina.

Maritime Provinces—J. STANLEY BAGNALL, D.D.S., 34 Larch St., Halifax, N.S.

Manitoba—W. W. WRIGHT, D.D.S.

767 Warsaw Ave., Winnipeg.

Ontario—LIEUT. COL. W. G. THOMPSON,
28 King St. West, Hamilton.

Quebec—ARCHIE N. JENKS, D.D.S.
Medical Arts Bldg., Montreal, Que.



MARITIME PROVINCES.

THE opening of the Dalhousie Public Health Clinic, which occurred early in November, was an event of more than passing interest to the Dental Profession. This building is very commodious and embodies the latest ideas in fireproof construction and convenience for the work of the clinics. It makes an imposing and essential addition to the group of hospitals and laboratories which are growing up in close association with the Dalhousie Medical and Dental Schools. It is of particular interest to the dentist from the close association of dentistry with the other clinics which are given in the building. These clinics comprise the following: General Medical, General Surgery; Eye, Ear, Nose and Throat; Dental; Gynæcology; Orthopædic; Chest; Pre-natal and Skin.

The Dental Clinic at the present time has three divisions: A school clinic for school children from 6-12 years old, in charge of Dr. Hazel Thompson; a pre-school age clinic, in charge of Dr. Roberta Forbes; and a dispensary clinic, for the benefit of those who are unable to pay for dental attention, which is in charge of Dr. J. Stanley Bagnall. The dental clinic is, as might be expected, the best attended clinic in the service. Not only are patients referred directly to this clinic, but a large number of patients are referred to the clinic from the other clinics in the building, so that there is an exceedingly good chance to work out the association of dental foci of infection in their relation to systemic conditions; and, what is so often lacking in work of this sort, an opportunity, through the home nursing service, to follow up these patients after they leave the clinics. As all senior medical students attend the various clinics, including the dental, they are able to see the close connection between dental and systemic conditions.

The building is an outgrowth of the work which has been done during the past four years at the Halifax-Massachusetts Health Centre. Much the same clinics are held, except that in the dental service, the need for the pre-school age clinic has grown from three half days a week to full time service. The school age and dispensary clinics take the place of work formerly so efficiently carried on by Drs. Ritchie and Stults at the Halifax Dispensary. These services have also both been extended.

J. S. B.

* * *

QUEBEC.

MONTREAL DENTAL CLUB.



OFFICERS and committees of the Montreal Dental Club have been elected for the season 1924-25, as follows: *President*, J. S. Common; *Vice-President*, F. H. A. Baxter; *Secretary-Treasurer*, A. L. Walsh; *Cor.-Secretary*, A. N. Jenks; *Committee*, F. G. Henry, D. P. Mowry, Ross Cleveland, R. W. Edmison.

The season was opened in October by a dinner followed by two helpful addresses. Dr. J. S. Dohan spoke in his usual practical way on "Office Management," and Dr. F. G. Henry gave a good talk on "Investments for the Dentist."

At the October meeting a two-day clinic was given by Drs. Clappison and Stewart of Hamilton, on "Fixed Bridgework and Casting" and "Porcelain Work." The meeting was most practical and helpful.

* * *

At the December meeting of the Club, Dr. John Jacob Posner, of New York, was the Clinician. By the aid of only two platinum needles, a delicate glass syringe, a 2% Novocaine solution, some simple, definite rules of technique and precautions, the Clinician was able to produce very easily, rapid and profound anaesthesia of all teeth.

The members were especially impressed by the simplicity and efficacy of this technique, the suprapariosteal, in comparison with those with which they had been acquainted.

Dr. Posner, after an extensive visit to important European Oral Surgery Clinics and close contact with several well-known American surgeons, declares for the heavy 22-gauge two-inch iridio-platinum needles for mandibular injections, and the inch and a-half 25-gauge needle for all suprapariosteal injections.

Dr. Posner proved to be a most lucid and convincing speaker, and an operator of exceptional ability.

His operating clinic at the Montreal General Hospital, was most helpful, and his illustrated lecture at the Mount Royal Hotel, after dinner, was most enthusiastically received.

A. N. J.

* * *

MANITOBA.



PUT your finger on the middle of the map of North America and it is at Winnipeg where a big Western Canada convention is being planned for next May. The Winnipeg Dental Society took the responsibility for naming a committee of twelve, of which Dr. Manly Bowles is general chairman and Dr. M. H. Garvin, secretary, for the purpose of rejuvenating the Western Canada Dental Society. Several committee meetings have been held and when it is known that arrangements are already completed with Dr. Weston Price for his presence, it will be understood that this committee are sparing no efforts to put on a real good convention. The dates are May 12, 13, 14, 15, 1925. Several dentists from western provinces spoke of this matter at the Vancouver convention and we have taken the initiative. Hearty support is expected from British Columbia, Alberta, Saskatchewan and Western Ontario, as it is proposed to meet in one of these provinces on years alternating the Canadian Dental Association.

* * *

The Study Club idea has arrived with great eclat in Winnipeg, no less than four active clubs being in operation. They hope to have some good work in shape for the big convention in May.

W. W. W.

* * *

BRITISH COLUMBIA.

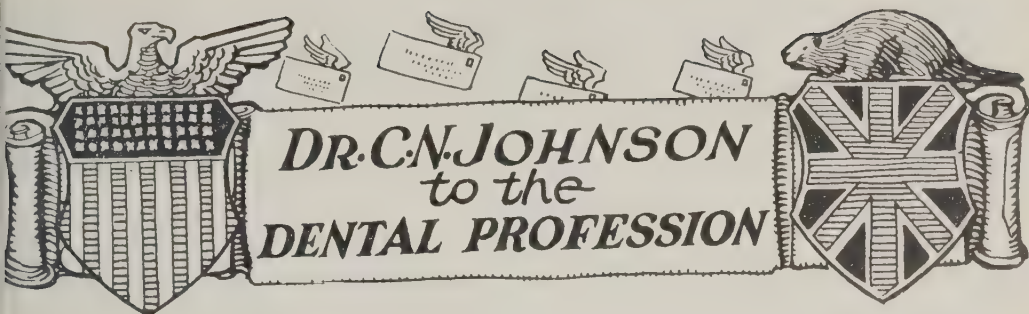
RESOLUTION: NORMAN BUCHANAN FORRESTER.

Whereas—It has pleased our Heavenly Father to take from our midst a new member and friend, Dr. Norman Buchanan Forrester, now, therefore be it

Resolved, that with his sudden death at the beginning of his years of best usefulness we feel a sense of deep loss, and be it further

Resolved, that a copy of these resolutions be spread on the minutes of the Vancouver Dental Society, a copy be sent to his family, and to the dental magazines.

R. H. W.



The New Year

IT is quite likely that every individual, consciously or unconsciously, starts the New Year with a resolve. Some people assume to be superior to that sort of thing—the making of resolves—and yet no one is really above making a resolve if he is human. Without resolving to do better, we never would do better, and if we never did better, humanity would stand still.

New Year seems the logical time to take stock, to see not only how much we have, but, what is more important, to see how far we have gone. Some philosopher has said that it mattered not so much where a man stood as it did the direction in which he was going, and this is a good time of year to find out.

Let us look at the horizon and see, as far as it is humanly possible to do so, what the future holds for us. As I see it the dentists of Canada have a very promising prospect. In no country in the world has dentistry advanced with greater strides in the past decade than it has in Canada. It has struggled up under adverse circumstances till it is to-day a recognized entity in the affairs of men. Take the 1924 meeting of the Ontario Dental Society, with an attendance of 600 earnest men and women, meeting with a common purpose for the betterment of human kind, and then think how impossible such a meeting would have been twenty years ago in this Province. There is developing a keener interest in dental association matters on the part of the rank and file, and after all it is the status of those in the ranks that really counts in any profession. What particular benefit is it to the common people of any country to have a few conspicuous examples of men in a given calling who stand out head and shoulders above their fellows “in splendid isolation,” while the man in the ranks plods doggedly along without the ambition to raise his head and get a vision of bigger and better things?

A profession is great and useful only when the majority are making progress; when the man at the cross-roads is reaching out for the privilege and the ability to render more efficient service. Let no man

think he is a law unto himself, whether he serves those in gilded palaces or ministers to the lowly in log houses or single-roomed cabins. It is the alleviation of human suffering that really counts, and the change of countenance from the agony of pain to the relaxation of relief is as gratifying on the face of a washerwoman as it is on that of a potentate or prince.

So the real thing in professional life is to see that the great body of membership shall get the spirit of advancement, and experience a healthy unrest which takes them out of the rut of routine and urges them to mingle more and more with their fellow practitioners in association work.

The future of dentistry in Canada rests largely with the young men who are coming into the profession to-day, and there should be the most royal welcome given these men as they enter the ranks. The older men should make known to them that they are inheriting at the same time a great privilege, and an equally great responsibility; that they must not be content with merely maintaining the profession where it is, but they must assume the added obligation of advancing it far beyond anything dreamed of at the present day.

If there is a rainbow of promise for dentistry at the evening of the old year and the beginning of the new, it has at its ends the elder man joining hands with the younger, and pointing not only to the brilliant coloring of the past but to the brighter vision of the future, and each pledging himself to do his allotted part in the great evolution which is going on in our profession to-day.

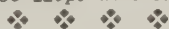
The most inspiring spectacle of the New Year is the entrance of so many of our young men into dental society activities, and the new faces which are constantly attending our meetings. This means virility of growth which can come only through associated effort. Without dental societies our profession would degenerate into a mere plebeian trade with little incentive and no inspiration or initiation. The progress of the past and the hope of the future is centered in the society, and the hope of the society is the young man.

Let me wish for every practitioner in Canada a happy and useful New Year, with the hope that young and old may unite in a common resolve to make 1925 the greatest year yet in the annals of our beloved profession.

C. H. Johnson

Officers of Canadian Dental Organizations

Oral Health will be Pleased to Receive Additions or Corrections that Directory of Names May be Kept as Accurate as Possible



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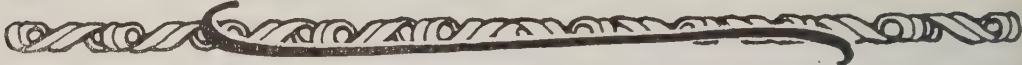
PRINCE EDWARD ISLAND

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P.E.I.

Oral Health



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Vol. 15

TORONTO, JANUARY, 1925

No. 1



EDITORIAL



Our Fifteenth Year



THE present issue of ORAL HEALTH ushers in its fifteenth year of publication. Many changes have occurred in the Dental Profession during that time, and a great many advances have been made. But backward glances only serve to remind us of the heavier obligations to-day, and of the vastly greater problems that must be faced by the Profession to-morrow.

ORAL HEALTH has been published from the first with the primary motive of service to the Dental Profession, and will so continue. With the exception of the first year, a nominal subscription rate has been charged. Beginning with this issue, the magazine will be sent (*without charge*) to every Dentist in Canada. With this exception, the present rates of subscription will continue.

The primary reason for the inauguration of this new plan is that of

service to the Dental Profession throughout Canada. Among the advantages hoped to be gained through a one hundred per cent. circulation among Canadian Dentists are the following:—

- 1st —The fostering of an united Canadian sentiment in the Dental Profession.
- 2nd—The more effective support of the Canadian Dental Association, the Provincial Societies, and all other Dental Organizations.
- 3rd—The enabling of official and other notices to be published in ORAL HEALTH with the assurance that every Dentist in Canada will receive a copy.

The pages of the magazine will be open for a free discussion of all questions affecting the interests of the Profession. Dental Societies and Dental practitioners alike are cordially invited to use the columns of ORAL HEALTH for contributions of value for publication.

Sincere Thanks

N accord with the new plan of sending ORAL HEALTH, without subscription, to every practising Dentist in the Dominion of Canada, all 1925 subscriptions are being returned either to subscribers direct or to the dealers through whom subscriptions were received.

It would involve so much time to acknowledge all subscriptions individually, that we take this opportunity of extending sincere thanks to the hundreds of Dentists throughout Canada who have forwarded renewals direct, and also to those who have placed their subscriptions through dental dealers.

From year to year the representatives of the dealers put a great deal of time into the securing of subscriptions for the dental magazines. This is a most worthy effort, and is greatly appreciated by all of the journals.

We regret that we were unable to announce our new plan of free distribution, to Canadian Dentists, early enough to prevent the expenditure of such effort to secure ORAL HEALTH subscriptions this year. We thank all of our good friends, however, and hope that with one hundred per cent. circulation throughout the Canadian Dental Profession we may repay this effort on our behalf through greater service to Dentistry.

Board of Directors of R.C.D.S. Re-Elected



THE Biennial election of the Board of Directors of the Royal College of Dental Surgeons of Ontario was recently held, when the entire Board was re-elected for the ensuing term of two years, commencing May, 1925.

All of the members were elected by acclamation with the exception of Dr. Irvine in District No. 2. Dr. Irvine was opposed by Dr. G. F. Wright, of Trenton, and obtained 54 of the 78 votes cast. The members of the Board are: The Honorable Minister of Education, Province of Ontario, ex-officio; S. S. Davidson, L.D.S., D.D.S., Ottawa; H. Irvine, L.D.S., D.D.S., Lindsay; R. Gordon McLean, L.D.S., D.D.S., Toronto; W. G. Thompson, L.D.S., D.D.S., Hamilton; W. M. McGuire, L.D.S., D.D.S., Simcoe; E. E. Bruce, L.D.S., D.D.S., Kincardine; S. M. Kennedy, L.D.S., D.D.S., London; A. D. A. Mason, L.D.S., D.D.S., Toronto.

Press Report Regarding Copper Amalgam



THE University of Toronto and the Royal College of Dental Surgeons of Ontario wish to state that they disclaim any knowledge of or responsibility for the statements recently made in the public press regarding the merits of copper amalgam as a root canal filling, and direct attention to the regular dental professional channels for information.—*Official Statement.*

Correspondence

The following letter has been received by ORAL HEALTH for publication:

Editor, ORAL HEALTH.

Sir:—We beg leave to disclaim all responsibility for the article which appeared in the daily press purporting to be a review of work which was done in the Department of Dental Research, University of Toronto, on Dental Fillings.

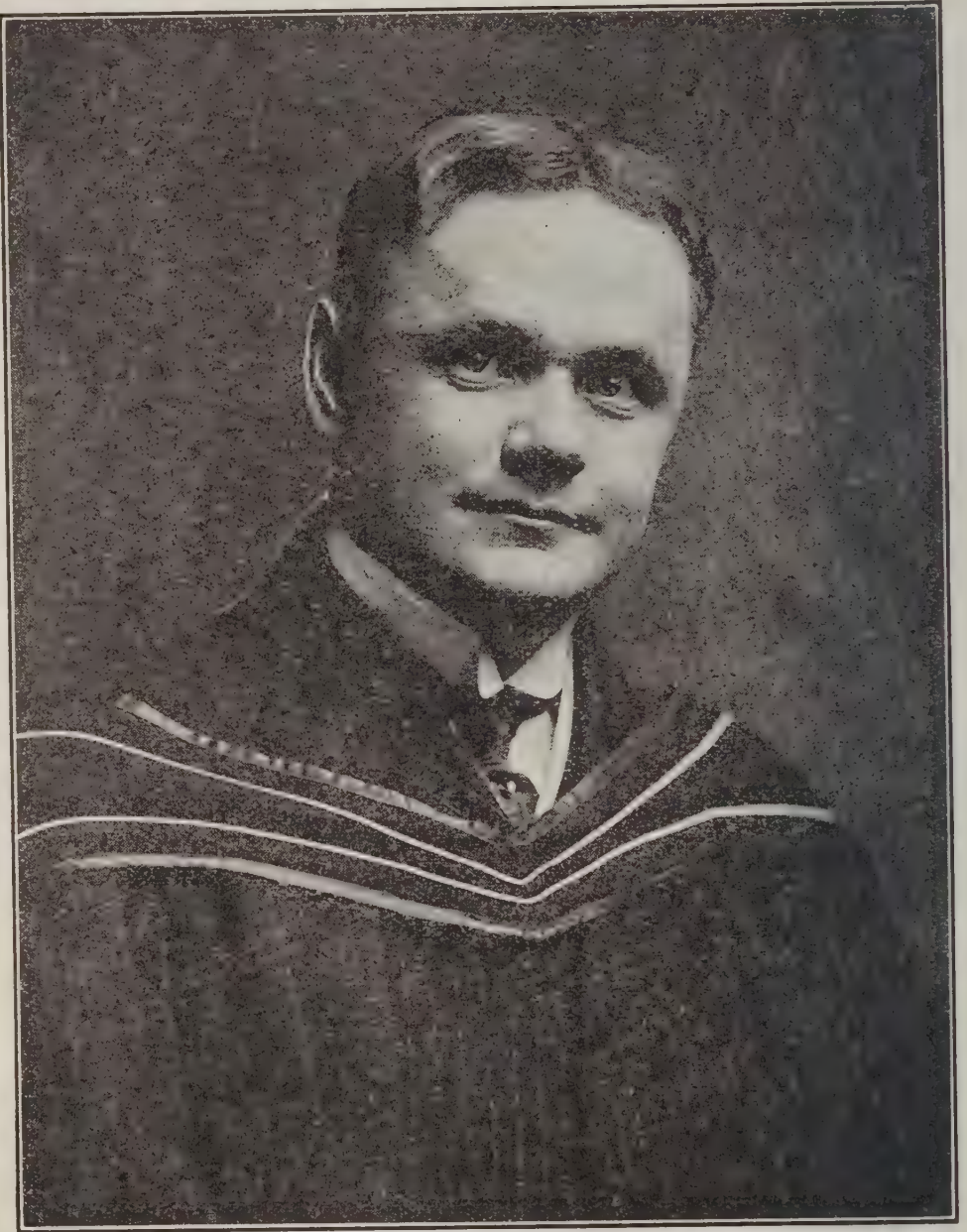
The article which was published in the press made most extravagant and misleading statements for the value and importance of the work, and was unauthorized and contrary to our wish.

C. JANE FRASER.
HARRY S. THOMSON.

True Success

“WE live and move and have our being in a universe that is a complex of mighty forces, both spiritual and natural, and the issues of life depend in no small degree upon our understanding of these various elemental energies.”

—*E. G. D. Freeman*



DR. FRED. J. CONBOY,
Director of Dental Services.
Province of Ontario.

ORAL HEALTH

"A JOURNAL THAT STANDS FOR THE 'OUNCE OF PREVENTION' AS WELL AS THE 'POUND OF CURE'"



Vol. 15

TORONTO, FEBRUARY, 1925

No. 2

The Appointment of Director of Dental Services for Ontario

A. W. ELLIS, D.D.S., TORONTO.

Chairman Oral Hygiene Committee, Ontario Dental Association.



THE appointment of Dr. F. J. Conboy, as Dental Officer of Health for Ontario, is the biggest step forward, toward the application of modern dental methods, leading to the prevention of dental disease, ever undertaken in Canada. Too much cannot be said in praise of the Prime Minister, Hon. Howard Ferguson, the Minister of Health, Hon. Dr. Forbes Godfrey, and other members of the Cabinet, for their interest in the health welfare of the people. They hope, by this appointment, and the co-operation of the dental profession, to set in motion machinery to lessen the ravages of dental disease.

For seventeen years the Oral Hygiene Committee of the Ontario Dental Association has been working with this object in view. Their work in that time has borne much fruit. With government recognition and support, by the above appointment, ends the first span of their romantic career. The reading over of the minutes of the meetings of this Committee would suggest that we, as a profession, ought to be very grateful to these men who, with a vision, sacrificed their time and energy in order that the people and children of Ontario might be helped and educated in the prevention of dental disease. Credit must also be given to the general body of the profession for assistance. Then the magnificent work done by the Canadian Army Dental Corps, during the Great War, has been a great factor in bringing before the public at large, the wonderful benefits derived by sound and healthy teeth. The accumulated momentum of this work through the years, plus the growing and ever-present idealism of the young, and the prudence of the middle-aged and the old, have made possible this appointment. Every great step forward in public welfare must have a great measure of support. It is

felt that the people of Ontario, at least, are sympathetic toward this new move, leading to better health conditions.

If dental disease and focal infection from the teeth is a menace to the health of the people, what is the best means to lessen it? It is believed that if every child in Ontario can be graduated from the Public School with sound and healthy teeth, then a great step is taken in this regard. The statistics show that where this has been done in certain centres, the subsequent results have astonished the most unbelieving.

The following are some of the activities planned under the new department:—

1.—The establishment of school dental services by municipalities. This will include a dental survey, class-room talks to the pupils, and a clinic where the children of the parents who cannot afford to pay ordinary dental fees can have the necessary work done. In this work the assistance of the teacher and school nurse can easily be secured. The dentists of the Province will make the initial survey gratuitously.

2.—The organization and supervision of dental services in the various government institutions, especially those of the children.

3.—The establishment of dental departments in connection with hospitals. The dentists of the Province have volunteered to give their services without fee for this work. Poor patients can have work done gratuitously or at small cost.

4.—Arranging to have dentists locate in the smaller rural centres. The graduates are willing to start practice in these places, providing the municipalities will organize a school dental service, so that the dentist may have a small fixed income. Many municipalities are willing to do this in order that they may have a resident dentist.

5.—The organization of the travelling clinic in the outlying districts. With the assistance of the Public School Inspector, or some one who knows the district, the itinerary is planned and the various towns and villages are notified of the date when the travelling dentist will visit them. The patients pay a fee sufficient to cover the cost, and are glad to do so, as it saves them the expense of travelling to some place where there is a dentist.

6.—In conjunction with the Director of Health Education, and the Oral Hygiene Committee of the Ontario Dental Association, to carry on an aggressive dental health education campaign, so that the general public may be warned in regard to the danger of dental diseases, and enlightened in regard to prevention and the maintenance of conditions of health and cleanliness in the oral cavity. Newspaper articles, public addresses, moving and still pictures, can be used for this purpose.

7.—Co-operation with societies and associations seeking to protect the public from the ravages of dental diseases.

8.—In conjunction with the Oral Hygiene Committee of the Ontario Dental Association to provide lectures for courses of instruction to teachers and nurses in training.

9.—Assist in connection with many of the activities now carried on by the Department of Health, such as industrial health and the condition of contagion, and thus secure the more sympathetic and energetic co-operation of the Profession of Dentistry in general health matters.

Dr. Fred J. Conboy, the new appointee, was born and educated in Toronto, graduating from the Royal College of Dental Surgeons and the University of Toronto, in 1904. For six years he was a member of the Board of Education, and was Chairman of the Committee of Medical and Dental Inspection, when the Toronto service was established; later being Chairman of the Management Committee in charge of this service and then Chairman of the Board. He is a member of the Board of Governors of the Social Service Council of Ontario, Chairman of the Special Committee on Mental Deficiency and Delinquency, also a past-president of the Ontario Association for the Care of Feeble-minded. Dr. Conboy is no stranger to the dental profession in Ontario. He is past-president of the Ontario Dental Association, Chairman of the present Board of Governors, member of the Oral Hygiene Committee, executive member of the Canadian Dental Hygiene Council, and the Ontario executive of the Canadian Dental Research Foundation. He is Professor of Economics, History of Dentistry, and Psychology, Royal College of Dental Surgeons. While Dr. Conboy is a Conservative in politics, the appointment cannot be considered a political one. It was made from the standpoint of merit, and has the endorsement of the profession in Ontario. He has the knowledge of dentistry and oral hygiene, the knowledge of the school system and various government institutions, and the ability as an organizer and public speaker. His work while connected with the Department of Education a few years ago, for one day a week, in organizing dental services, is well known.

The Oral Hygiene Committee asks the co-operation and assistance of every dentist in the Province for Dr. Conboy in his new work. They hope that the dental profession will at all times be ready and willing to do any work that may fall to their lot. Service, which prevents distress and disease, is the noblest that can be performed.

The profession will be kept fully informed of the work of the new department of Dental Health. The Oral Hygiene Committee of Ontario will start on its second span with renewed energy and hope, trusting that their labors will continue to be as fruitful as in the past, and that the young men who are to come after "May steer the fleet into waters not yet laid down in any chart."

The Relationship Between the Dealer and the Dentist*

BY C. N. JOHNSON, M.A., D.D.S., F.A.C.D.



HERE can be no question of the great value of the closest co-operation between the members of such allied callings as the dealers and the dentists in any capacity which has for its object a better service to the people. The fundamental lesson for each one of us to learn is that the ultimate goal of all our efforts is achieved only when those efforts are translated into terms of increased efficiency and greater happiness to the citizens of the world. In so far only as we contribute to the welfare of mankind are we performing our allotted task in the fullness of our greatest obligation. That individual, whether he be dealer or dentist, who limits his aims to the mere problem of earning a living, and who looks no farther than this, is not very far along the way to happiness, because happiness is not to be obtained in that way. It is an old saying, but true as it is old, that the surest way to achieve happiness is to constantly bring happiness to others.

Thus, if the dealer and the dentist are to get the most out of life they must look beyond what would seem to be their individual interests, and try to visualize the broader conception of their bounden duty to humanity at large. And as I see it, the first step in this direction is to try to recognize their duty to each other in the various intimate relationships under which they are thrown in contact. In the past they have not always exhibited the cordial consideration one for the other which their mutual interests should prompt, and the time, therefore, seems propitious for a checking up and a candid deliberation over the various means whereby better understanding and more efficient co-operation may be achieved.

I feel frank to confess that probably in the past the dentist has been less considerate of the dealer's point of view than has the dealer been of the dentist's. The dentist has too frequently assumed the attitude that the dealer was divinely ordained to work a hardship upon the dentist, and that his chief aim in life was to contrive in some way to separate the dentist from his hard-earned shekels. He has never taken the trouble to look into the dealer's point of view, or even to discover if perchance the dealer might be entitled to a point of view. It has apparently never occurred to him that the dealer might be right in many of their lines of cleavage, and the dentist be wrong. In short, to be perfectly candid in

* Read before the Dealers' Section of the American Dental Trade Association, at French Lick Springs, November 20th, 1924.

the matter, I think we may admit that the dentist is not as broad-minded as the dealer. Naturally his constant confinement to the four walls of his office does not conduce to breadth of vision, and sometimes the dealer must suffer the consequences. Next to the pettifogging and unprincipled lawyer, and the prejudiced and hide-bound clergyman, the narrow-minded dentist is about the most trying of all individuals with whom one may have business relations. Fortunately for the world, I think we may claim that the extreme types of all three are passing away—much to the advantage of society.

To-day I am inclined to believe that the impositions of the dentist on the dealer are for the most part due rather to thoughtlessness than to real ulterior motive. Not having been perfectly trained in systematic business management he sometimes becomes unwittingly a sore trial to those who have to deal with him, and because the dental supply man is called on to deal with him more extensively than any one else he becomes the chief sufferer.

With the hope that my remarks may in some way reach the members of the dental profession, I might suggest that it might be mutually beneficial if they would study a few items of unnecessary hardship which they are in the habit of thoughtlessly working on the dental dealers. Take, for instance, the one item of returning goods. Of course we must realize that on account of unforeseen exigencies it at times becomes necessary to return goods which the dentist is for some reason unable to use, and it is not likely that the dealer will object to a legitimate exercise of this prerogative. But when this privilege is carried to the thoughtless extreme manifest in some quarters, it not only becomes a nuisance of the first order, but it results in a very heavy and wholly unnecessary financial loss. And it is very little material aid to the dealer to realize that much of this is due to thoughtlessness on the part of the dentist—the loss is there in just as tangible form. The thing for the dentist to do is to try to realize his obligations in the matter, and so manage his purchases that there will be the smallest possible amount of returned goods. This he can do if he gives the matter a little thought, and he should at least be wise enough to realize that it is to his own material advantage to do this, because of the patent fact that any loss from this practice ultimately comes out of his own pocket—there is no possible way of escaping this conclusion. In his dealings with the dentist the supply man must make a profit else he could not remain in business, and every loss such as that sustained by the needless return of goods must be made up in a larger margin of profit, and this is manifestly paid by the dentist.

We all thus have a mutual interest in keeping down, as far as feasible, the aggregate expense of doing business, and the dentist should visualize this point of view more carefully than he has in the past, and should

co-operate with the dealer in every possible way. We need frequent conferences between representatives of the two interests looking to more approved methods of conducting our joint affairs, and personally I should like at this time to express my appreciation of the invitation extended to me to appear before you.

Another matter which mutually concerns us, and which should be studied more carefully by our dental organizations, is the arrangement of our meetings. In the past the dates and places of our large state societies have been planned for the most part without any consideration for the convenience or accommodation of the supply people, when as a matter of fact much of the interest manifested on the part of a large number of our members, particularly those who live in remote sections not easy of access to supply houses, centres around the exhibits of new instruments and appliances. The dealers have frequently been put to much hardship and considerable unnecessary expense by the haphazard way in which these meetings are dated, and there should be, on the part of the profession, a greater consideration for the welfare and the economical functioning of the supply people in the arrangement of their meetings. It is inevitable, of course, that there will be some overlapping of dates of state meetings, but they could be planned much better than they are, and at least some attention might be given to the greater convenience of the dealer. I think I may predict with some confidence that there will be, in the near future, a substantial improvement in this regard, following the appointment of a joint committee from the American Dental Trade Association and the American Dental Association, which has already met in conference and will continue to do so at various intervals till a more equitable plan has been worked out and submitted to the parent organizations. Much good will undoubtedly result from the deliberations of this committee, and better co-operation will ultimately obtain between the two associations.

There are many ways in which the dental profession may show a keener appreciation of their obligation to the supply interests than they have done in the past. It might as well be acknowledged at once that without the manufacturer and the dealer the dentist would be so crippled in his work that he would fall far short of rendering the most efficient service. This is something that the dentist does not always stop to consider, with the result that he all too frequently drops into the habit of ignoring his indebtedness to the genius and untiring efforts of the supply man, and assumes an attitude of indifference which does not tend to establish the most cordial relations between them. The hardest lesson in life to learn is to invariably be able to see the other man's point of view, and I am very sure that the dentist has not always exerted himself as he should to place himself in the dealer's position, and try to govern

his actions and his judgments accordingly. If he had, he would undoubtedly have been broader minded and more charitable of what he has been pleased to term the dealer's shortcomings.

And in like manner it may be said at this time in all candor that there are certain tendencies among some dealers which might profitably be considered from the dentist's point of view, to the end that the dealer may know the impression which is sometimes given the dentist by the dealer's various activities. In all likelihood there are many dental salesmen in this audience, and it so happens that the salesman is frequently the only medium of communication between the dealer and the dentist. If I venture to make some suggestions to the salesman I trust they may be taken in the same friendly spirit which prompts them. They are intended merely to turn the current of the salesman's thoughts in a slightly different direction from that which most intimately concerns himself, and show him some things from the practitioner's point of view.

To begin with, I would remind him that it is not always pretense when the dentist tells him that he is extremely busy and that there is constant pressure on his time. In some offices the very minutes count, so that when a salesman makes a plea to see the practitioner "for just a minute" or "for only five minutes," he often fails to realize the extent of the favor he is asking. Every considerate and gentlemanly practitioner would be only too glad to see the salesman whenever he comes to his office if it were at all possible for him to do so, but it is only the really and truly busy man who can realize how futile it would be to attempt such a courtesy. The mere fact that he may not have a reception room full of patients at the moment, or even that he may not have a patient in the chair, is no evidence that he is really at liberty. There may be a myriad of items pressing for attention on his desk or his bench, and when the salesman, in his enthusiasm, extends his "five minutes" into fifteen or twenty it works a serious hardship on the dentist. Curiously enough I have seldom encountered a salesman who wanted more than five minutes or who took less than fifteen minutes. I always try to be interested in their product because I honestly want to look at their side of the situation, but—I must confess that some of them have actually spoiled a sale with me by ignoring their original promise and talking altogether too long.

The psychology of the dental salesman has always been to me a matter of intense interest. Frequently I have admired him, sometimes I have envied him, and occasionally I have wanted to cuss him. I have always aimed to put the charitable interpretation on his activities that he was obliged to earn his living, and was only trying to do his best in this particular. Among the salesmen I am proud to number some very excellent and even intimate friends, and it is a genuine pleasure to have

an occasional chat with them whenever the opportunity presents and time will permit. These are the men who have learned the value of an operator's time, and who never intrude their personality on him with the flimsy excuse that they have something of the greatest importance to impart to him, and are obliged to see him in person during office hours. In short, they are men who have grown big enough to see the other man's point of view.

There is one class of salesman to whom I wish especially to refer at this time—not because they are so great in numbers, but because their particular duties render their association with the profession of the utmost importance. These are the men who have charge of the salesrooms in close proximity to our dental colleges, and who thus come in intimate relationship with our great student body. I wish I could impress on these men the possibilities of good or ill which may result from their close contact with the under-graduate. These boys are in the formative stage of their professional life, and are easily molded into correct or incorrect ideas. They come to the college often with very little experience of the world and its ways, and are thus subject to the impressions they receive in what is probably their first contact with a strange social fabric after leaving home. It is consequently of the utmost importance that all of the influences which surround them in their college days be of the most wholesome character, and that they, in these early days, imbibe the highest ideals and best traditions of their future professional life. The students naturally associate with the salesman on a basis of comradeship which does not obtain between the student and the teacher. They exchange confidences and the student falls into the habit of seeking advice in many of his problems. It, therefore, quite naturally follows that the salesman acquires a very unusual influence over the student, which, if he exercises it in a beneficent and constructive manner, may easily lead to great good. But, on the other hand, if the salesman's influence and example are exerted in any ulterior manner he may plant a seed in the student's mind which will ultimately grow into a noxious weed instead of a profitable plant.

I think that probably many a student's life has been directed by the conscientious salesman into a bigger and broader vision, just as I am sure that in some instances the influence of the salesman has not been salutary. When, for example, the salesman says to a student in an apparent burst of confidence, "It's all right, of course, in college for them to teach you ethics, but when you go out you will go after the dollar," the effect on the student's mind is not to make of him a promising professional man. It may be quite natural for the salesman to emphasize the value of a dollar, and there is always the temptation to discuss finances, because the student is attracted to that subject. That

dollar looms very large in the student's mind during his college days when he finds it so hard to get a dollar, and when in all likelihood the chief incentive which prompted him to take up dentistry was the feeling that he could thereby make money or at least a respectable living. There is little wonder that both the salesman and the student should naturally find themselves discussing money, nor even that they should in so doing minimize the factor of ethics in professional life. Neither one of them has been placed in such a relationship to ethics as to be able to grasp its full significance in the upbuilding of our profession. The salesman's chief interest in dentistry is manifestly to sell manufactured articles. He is not concerned with the relationship involved in the contact between the practitioner and the patient, which at once introduces the principle of professional ethics. And the student, fresh from the high school or academy, with his mind still in the making, cannot be expected to see the significance or beauty of this type of ethics. A real ethical vision comes only after association with patients in the rendering of service, when the sense and scope of his professional obligation is day by day borne in on him by actual contact with suffering and its relief.

But both should be made to realize that ethics in professional life is a very essential factor in their own personal welfare. Had it not been for ethics there would have been no profession of dentistry as we see it to-day—nothing beyond the crude forceps of the barber, the blacksmith, or at best the practising physician. All of the beautiful equipment furnished by the manufacturer and sold by the salesman would never have been called for—all of the aspirations of the enthusiastic student who has ambition would not have been possible of realization. Ethics has built our profession, and it will be the only means by which it may be maintained. Therefore, it is distinctly to the advantage of the dealer and salesman to uphold the ethical idea in every possible way, and to this end, in their contact with students, they should lend the weight of their great influence toward an ever-increasing respect for ethics on the part of every man or woman with whom they come in contact.

Another matter worthy of consideration at this time, as it concerns the student or recent graduate, relates to the tendency on the part of some of our salesmen to overload the graduate with too much costly equipment. It is a quite natural temptation to sell as many goods as possible, and the young man in the full flush of his acquisition of a diploma and his exalted vision of a lucrative practice is a very alluring prospect. The level-headed dealer must know that there is no profit in selling goods to men who are not able to pay for them, but the impulsive salesman does not always seem to realize this. As a consequence there are

too many concrete examples of young men starting out in practice with so expensive an equipment that they are handicapped from the start by a heavy debt which they are not able to liquidate and which acts as the proverbial millstone about their neck. I would not have the presumption to make any suggestions to a body of men who know so much more about conducting business than I do, but my interest in the matter is primarily associated with the welfare of the young men starting out in dental practice, and it is impossible for me to see how this tendency to over-equipment is for the betterment of either the graduate or the dealer. I am very sure that it has worked to the detriment of many a young man and has clouded the earlier years of his professional life.

The financial loss to the dealer in bad debts and returned equipment is not the only unfortunate circumstance connected with such transactions—it is the general demoralization of the whole affair. A young man should start out in life with an exalted sense of his financial obligations, and the dealer should do his part in instilling this principle in the minds of all new graduates. In his relationship with students and graduates the dealer has an unusual opportunity of exerting a wholesome influence in the way of better business ideas, and it is not only his obligation to do this, but it is manifestly to his own advantage. As has been intimated, the average dentist is not too well grounded in business principles, and the dealer has probably been made to suffer more than any one because of this factor. How much better for all concerned to have the new graduate start out in a modest way with an equipment that he can hope to pay for, and then add to this equipment as he secures the means, than to have him attempt to make a spectacular showing at the start only to collapse financially a little later and throw a lot of used goods back on the dealer's hands. The latter course cannot be profitable to the dealer, and it surely results in disaster to the graduate.

I have deemed it wise to bring this matter before you for your consideration for two reasons—one because I have seen so many financial failures among young professional men from over-reaching, and the other because I believe your body is so well qualified to discuss the subject for the ultimate benefit of all concerned.

In closing, may I beg the privilege of expressing to your organization as a whole my keen appreciation of the honor of the invitation to address you on this occasion? I believe we are entering on an era of closer co-operation between the supply interests and the profession, and I should accept it as a rare privilege and a very great personal pleasure if I could feel that in any way I had been instrumental in contributing to this end.

The Royal College of Dental Surgeons of Ontario as a Faculty of the University of Toronto

R. GORDON McLEAN, D.D.S.

 HE movement to make Dentistry a Faculty of the University of Toronto is by no means new. Negotiations to this end were carried on in 1907, 1914 and 1919, but were without result, chiefly on account of difficulties of finance. More recently the Board of Directors of the R.C.D.S. has been conferring with a University Committee and hopes in the near future, to place before the profession, for its approval, a plan under which the advantages of closer co-operation with the University will be secured while maintaining the better features of the existing arrangement.

Dentistry is now fully recognized as an honorable profession, vitally concerned and intimately connected with public health. Faculties of Dentistry have been established in almost all the great universities of the world and, in the present trend of Dental Education, it would seem inevitable that our College should, sooner or later, link itself more closely with the University of Toronto. In order that the public health may be protected, the practice of Medicine and of Dentistry must be carried on in the most friendly spirit of co-operation. It is therefore desirable that there should be a similar co-operation in the teaching and preparation of students for the practice of these professions. The time is fast approaching when the social and scientific aspects of Dentistry will be led by the Faculties of Dentistry in the Universities, just as Medicine and other sciences are being evolved at Universities where advanced thinkers naturally congregate because of the associations and facilities to be found there.

The tendency of Dentistry in the past has been to concentrate upon the mechanics of the science rather than upon its dynamics—that is to say, upon the technical restorations rather than upon the fundamentals of Physiology and Pathology. This trend should be offset by a centralized method of teaching which will, by a closer relationship with the basic sciences and with Medicine, emphasize Preventive Dentistry and show it to be of outstanding importance in practice, as it must become increasingly pre-eminent in theory.

Technical procedures have in a measure been conquered and do not

require the same attention as formerly from the leaders of the profession. Nevertheless dental disease is as rampant as ever in spite of this perfection of technique, and it is not too much to say, that so far little has been accomplished but repair its ravages. We are beginning to realize that dental disease is an important cause of ill-health and that the health of the mouth is not simply a matter of comfort and beauty.

This trend of scientific development is as keenly appreciated by the students of to-day as by the profession. The students feel the need for the intimate contact of a larger organization in which all phases of research and study have a place. This accounts for the feeling which unquestionably exists, and which must be felt to be appreciated, that in an affiliated college the student cannot consider himself as part of the larger world of Scientists with which he is more or less associated. This world is a University world and he feels himself no nearer than its margin.

These somewhat impalpable problems have been preoccupying the minds of the more thoughtful members of the profession for some time, but the whole question of the future of the teaching of Dentistry and the relationship in Ontario and the Dental College to the University has been brought out in sharp relief by the more recent negotiations.

The University, with the sanction of the Government, has agreed to give generous support to Dental Education, and the concurrence of the profession in the proposed plan will result in marked advances in the science and practice of Dentistry.

We believe that the taking over of the teaching of Dentistry by the University, leaving the practice, licensure and discipline of the profession under the control of the Board of Directors of the College, would be of mutual advantage to the students, the profession, the University and the public. It would be a decidedly progressive step in dental pedagogy and would emphasize the identity of and give substance to the more enlightened opinion of the profession which considers dentistry as a vital branch of the healing art.

American Dental Association



THE Sixty-seventh annual session of the American Dental Association will be held in Louisville, Kentucky, *September 21-25, 1925.*

Jack Williams—1893-1925

Being a personal sketch of a young Canadian who, while in his early thirties, was an outstanding figure in the world of sport, travel, and business, written for ORAL HEALTH by one of his Buffalo friends.



WHEN most of us sat in gay parties, ushering the old year out and the new year in, little did we think that Jack Williams, beloved by us all, was fighting for his life—and that the new year would scarce be on its way ere he would be called to a nobler and greater work.

On Thursday, January 8th, at one o'clock in the morning, Jack bid a fond adieu to a world he loved so well. It was the end of a hard fight. For five long weeks Jack had battled against losing odds; first influenza, then pneumonia and finally typhoid. Any ordinary man would have given up long before—but Jack fought gamely on, with all the vigor of his thirty-one years against a terrific fever that racked and scourged his robust body like the hot breath of a desert wind. But destiny was not to be denied—and came the transition of Jack Williams from this to another world.

Jack was born in Nanaimo, British Columbia, August 15th, 1893, the son of Alexander Duncan Williams and Eva May Williams. He was the brother of Reginald V. Williams, by whom he is also survived.

As a boy he spent three years in the Yukon territory next to the Arctic Circle, where his father was operating several mines. Later he entered Upper Canada College in Toronto, where he won a place on the football, hockey and cricket teams and acquired scholarship prizes in Greek, Latin, English Literature, French, Classics and other subjects, graduating a prefect of the institution. He matriculated with honors into the University of Toronto.

He decided, however, to enter the University of Kansas, where he was elected to the Phi Gamma Delta Fraternity, majored in Journalism and Economics and graduated at the age of twenty-one with a Bachelor of Arts Degree. Jack rounded out his education by studying law for two years at the University of Buffalo.

At the time of the Mexican outbreak in the summer of 1916, Jack volunteered for service in the National Guard and later enlisted in one of the first American Flying Units. When the World War broke out he joined the United States Naval Aviation Division. He studied Aeronautics at the Massachusetts Institute of Technology, graduated with the commission of Ensign and was selected to co-operate in very important experimental work on Submarine Detection. This work was

fraught with great danger. He had several bad crashes and on one occasion was lost at sea.

Jack was the first pilot to fly a fourteen passenger plane from Philadelphia to New London, Connecticut, and was also the first to try out certain new wireless communications. After the war he remained in the Naval Reserve.

With the passing of Jack Williams, the dental trade lost an outstanding character—its most brilliant figure, in the opinion of many. There was only one Jack Williams; these words will ring home with truth and significance to all who knew him—and, who did not know him?

Jack was everybody's friend. There are many who know that he was a friend in need—many to whose aid he came when help was needed. If there ever was a Prince of Good Fellows, that honor belonged to Jack Williams. If anyone could claim title to a "hail fellow well met," it was Jack. As you saw him to-day, so he was always.

It didn't take an expert in human nature to fathom Jack Williams. His cards were always on the table. Jack was a positive personality, plus. To have met him once, was to remember him always. His sunshine endeared him to everyone that met him. His enthusiasm was irresistible. He stood for fair play and championed the cause of all that was fair and ethical in the dental trade. Those with whom he differed, admired and respected him.

It is surprising to many that it should have been Jack's lot to fold up his tent and journey on in such a prosaic way. He fished and hunted big game in Alaska, British Columbia, Central and South America, Africa, India, and other parts of the world. Those who knew his darling would not have been surprised if in some feat of prowess, such as a hunt, the wheel of fortune had turned against him.

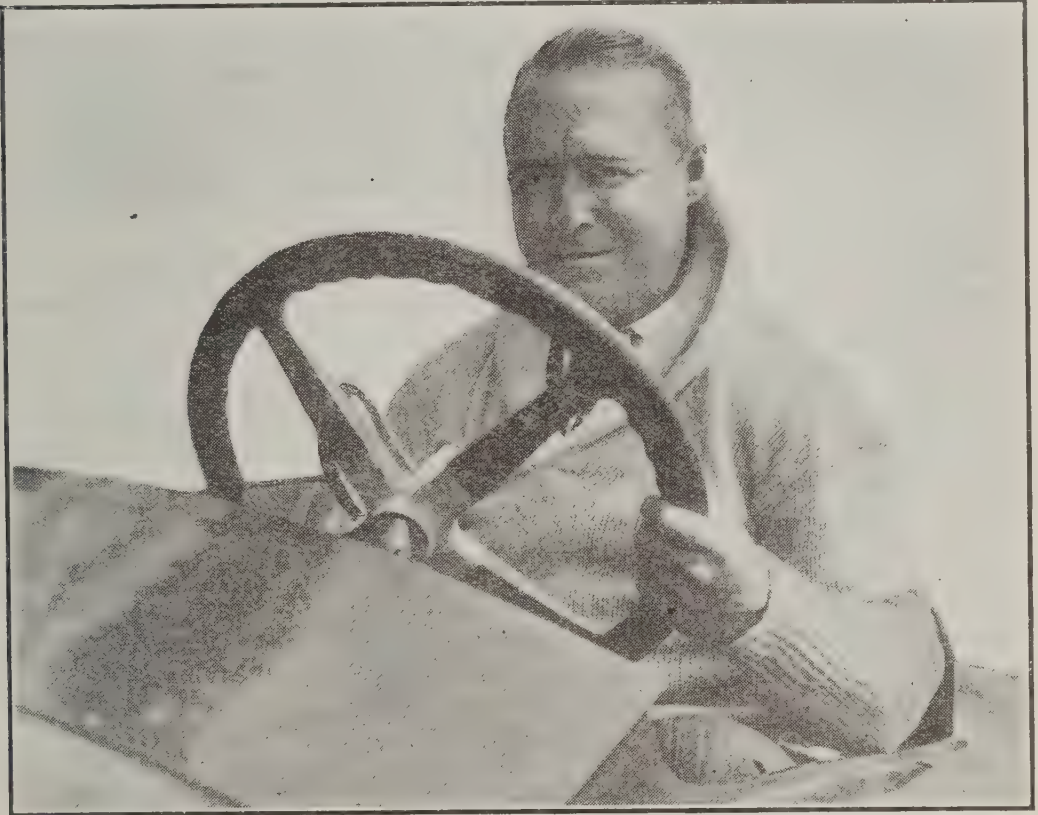
Had Jack chosen a literary rather than a business career, he would have undoubtedly been one of America's foremost writers, and from his many characteristic stories in dental publications, we know of the perilous positions he had been in—the danger he had faced with the courage and audacity of a Robin Hood. For, under his coat beat the staunch heart of a true sportsman. He did not know the meaning of the word fear.

It has been said that if Jack had the slowest boat, he would cross the line first if nerve and courage would win the race. But, we know that Jack never had slow boats. He ranked as one of America's foremost motor boat racers, scoring victory after victory in national motor boat classics with his racing boats Willgold I. and II., and Curtiss-Willgold I. and II. Last winter he won his class championship at Miami, Florida, also at Havana, Cuba—and last summer at the Great Lakes, he won the E. R. Thomas trophy and the Interstate Championship.

At the time he answered the last call, the Express Cabin Cruiser Will-

gold was being completed—a palatial boat in which he intended to cruise to the south this winter and which he had planned as a source of much pleasure for his many friends on the Great Lakes next summer.

Many of his friends the world over were those he had made in a business way. As Vice-president and General Manager of the Williams Gold Refining Company, he made every personal contact count. Very few young men in America could be credited with higher personal sales



JACK WILLIAMS BEHIND THE WHEEL OF ONE OF HIS RACING BOATS.

in a merchandising line than Jack—and this was due to his magnetic personality that made a friend of everyone he met.

He was respected by the trade for his adherence to business policies. And, it was his broad vision, real ability and personal power that contributed largely to the remarkable growth of the Williams Gold Refining Company. Always thinking ahead, he left at the time of his departure, extensive plans for the future development of the business.

But, Jack Williams' fame was not confined to the dental profession. He was a citizen of the world. Most of his time was spent travelling in every country of the world. For almost one year he lived in Shanghai,

China. At one time he encircled the globe twice in eighteen months. Jack Williams will be fondly remembered in prominent business, financial, military, art and social circles from the Riviera to New York and from Seville to the Yukon.

During his travels, he never forgot his family. They were ever in his thoughts and he continually sent gifts to surprise and thrill them from the far off corners of the world.

Jack's popularity is reflected in his prominence as a clubman. He was a thirty-second degree Mason and also a member of the following organizations: University Club of Buffalo, Buffalo Country Club, Buffalo Athletic Club, Buffalo Launch Club, Buffalo Canoe Club, Buffalo Trap and Field Club, Phi Gamma Delta Club of New York City, American Club of London, Aero Club of America, Old Colony Club, Sigma Delta Chi Fraternity.

When the news flashed out over the wires that Jack Williams had passed on, hundreds of telegrams and cablegrams of condolence were received by the grief-stricken father and mother. The funeral services were attended by many prominent in the dental trade, including: Dr. Layton Grier, Alfred L. Fawcett, Dr. Harry J. MacDonald, Dr. Sheridan Waite, J. F. Jelenko, Chauncey R. Pelton, Chester G. Kays, John Norton, George Carmichael, and H. E. Carley. Interment was at Forest Lawn Cemetery, Buffalo, New York.

Jack Williams will be missed. He will live long in the memories of all who knew him. At many a gathering for years to come when good fellows get together, Jack will be the subject of fond, reverent, admiring conversation. For, all who knew him, loved him.

There Are Patients and Patients

“ HERE are certain patients who pay their bills promptly, who give you little trouble, and who forget all about you as soon as their immediate trouble is over and they have settled their bills, according to *Doctor and Patience*. They are good steadies and help the good work along. But there are two other classes of patients who are just as valuable, although the direct monetary return is not as great. In the first class are those patients who go about bragging of their doctor, (just as though you didn't belong to anyone else) and make it their business to lug everyone in to you by the back of the collar. You have to make the second class.”

The Ontario Dental Convention

FRED J. CONBOY, D.D.S.,
Chairman Board of Governors, Ontario Dental Association.

PLACE—University of Toronto, Arts Building and HART HOUSE.

TIME—May 26, 27, 28, 29, 1925.

PROGRAMME—Essayists:

Dr. Weston A. Price, Cleveland. Two illustrated lectures.
Dr. M. M. House, Deaner Institute, Kansas City. Full Dentures.
Dr. Harry B. Johnston, Atlanta. Root canal treatment.

Clinicians:

Dr. Harold Keith Box
Dr. Paul R. Stillman
Dr. John Oppie McCall and others. } Periodontitis.

Drs. Mortonson and Mortonson, Milwaukee. Inlays and Bridges.

Dr. Weston A. Price. X-Ray Interpretation.

Dr. M. M. House. Full Dentures.

An outstanding clinician on Partial Dentures.

Progressive clinic on Oral Surgery.

Full particulars in next issue.

* * *

NEW ATTRACTIONS.

The entire Hart House placed at the disposal of the Association.

The University Residences, containing accommodation for two hundred and forty members, at the nominal cost of five dollars for the entire time.

Regular meals served in the large dining hall at reasonable charge.

The two great examination halls filled with exhibits.

Special rooms provided for class and society reunions.

Interesting athletic contests.

* * *

Do you wish to protect your health? Are you anxious in regard to the health of your loved ones? Do you wish to safeguard the health of your patients?—hear *Weston Price*.

* * *

SPECIAL FEATURES.

(1) The College "Home Coming."

(2) The Annual Dinner Dance.

(3) The big "Dental Masonic Night," at Masonic Hall, University Lodge.

- (4) Canadian Dental Army Corps Re-union Banquet, in honor of our President.
- (5) Class and Fraternity Re-unions, including the noon-day Re-union Dinner, when all graduates will be seated at tables according to year of graduation.
- (6) A grand re-union of the patriarchs and pioneers of the profession who will be the guests of the Association.
- (7) Golf Tournament.
- (8) Complete Oral Hygiene Exhibit.
- (9) A special session for those engaged in School Dentistry and Oral Hygiene work.

* * *

Some persons are handicapped from birth, they inherit a poor resistance to disease, their death certificate is all filled out except the date. Do you wish to fill in the date? Weston Price will tell you how to protect such patients.

* * *

ANNOUNCEMENT EXTRAORDINARY.

The week of May 24th is the "big week" in Toronto. The Woodbine Races, Sunnyside Amusement Park, Hanlan's Point, Scarborough Beach, the theatres, and many other attractions will make your stay in the city most interesting and enjoyable.

* * *

Remember the silent owl and the chattering magpie. 'Tis better to look wise than to talk foolishly.

Now is the time to decide that you will attend the next Convention of your Association. Last year we promised you a good programme and a profitable and pleasant time; you attended the Convention and you were not disappointed. This year we promise you a still better programme and a larger number of enjoyable features. You are coming to the meeting and you will be not only satisfied but delighted. Last year we were working under certain handicaps, but these have been removed. We now have an ideal convention home, with plenty of space for our exhibits, ideal rooms for the clinics and a large, comfortable, well-ventilated auditorium, for our general meetings. Special rooms will be provided for the classes, clubs and fraternities that hold reunions, and these rooms will be reserved for them during the entire length of the Convention.

* * *

The virtue lies in the struggle, not the prize.

- (1) Mark off the dates.
- (2) Plan to be present.
- (3) Decide definitely that you will attend, and make the necessary provision.
- (4) Procrastination is the thief of opportunity as well as of time.
- (5) You owe it to your patients, your profession and yourself.
- (6) You must sacrifice other things, if necessary, in order to get the benefit and inspiration of this great Convention.
- (7) Determine now that you will do everything in your power to boost the Annual Meeting of your Association.

* * *

With ordinary talent and extraordinary perseverance all things are attainable.

* * *

These are years of business depression and burdensome taxation. Economic conditions have severely affected our profession and many dentists feel somewhat downhearted and discouraged. We must ever remember that it is during the testing time that we display our true worth, and if we, as a body, are willing to apply practical ethics by helping one another to maintain a high standard of service and to fulfil our obligations to society, we will yet overcome the untoward conditions which now prevail, and demonstrate to the world that we want a high place among the learned and altruistic professions. The best way to get the courage and inspiration necessary for the task is to meet with your confreres in annual convention.

* * *

There are more men who have missed opportunities than there are who have lacked opportunities.

* * *

What do you owe to your profession? What is the profession of Dentistry? What would it be if the dentists now practising would use only the knowledge and methods discovered and worked out by the men and women of this generation? Is it not a fact that the great superstructure which we call dentistry could not have been built had it not been for the foundation so carefully laid by those who have preceded us; the men who blazed the trail, the pioneers of our profession? Many have gone to their eternal reward, and we delight to remember them, but some still remain with us, and we would do them honor. Dr. Walter Willmott is arranging a reunion for those dentists of Ontario who started their professional activities more than fifty years ago. They are to be the guests of the Association. We know you will be glad

to assist in entertaining them, the Annual Convention will provide your opportunity.

* * *

To be trusted is a greater compliment than to be loved.

* * *

The members of the profession who are Masons will be pleased to learn that University Lodge has invited us to be their guests on Thursday evening, May 28th, in connection with what we call our "Big Masonic Night." The programme has not yet been arranged, but we expect that the various chairs will be occupied by members of the profession who hold high rank in the Craft, and that an outstanding speaker will be secured. Those who desire to register, kindly communicate with the Secretary, Fred. J. Conboy, 1043 Bloor Street West, Toronto.

* * *

All things should be true to nature; a hornet that cannot sting is a melancholy failure.

* * *

Provision is now being made for a complete Oral Hygiene Exhibit. A special room will be reserved and everything new in motion pictures, still pictures, placards, booklets and newspaper articles will be shown. Dr. Arnold Semple and Dr. H. G. Robb have charge of the details. A special session for those engaged in connection with a School Dental Service is also being arranged.

* * *

A mule that will neither kick nor bite should be watched closely to discover where his malice lies.

* * *

It has conservatively been estimated that dentistry can add ten years to human life. Dr. Weston Price will tell you how to do it!

* * *

DIALOGUE.

SCENE: A group of Toronto dentists in friendly conversation.

PLACE: Osler Hall.

TIME: After the address given by Dr. Weston Price.

Mac.—Well, what do you think of that, Gus?

Gus.—Wonderful; I don't know how he does it.

Harold—Hard work and lots of it; close and careful application, that tells the story.

Ed.—Every dentist in Ontario should hear that address.

Harold—Dr. Price will be here at the Annual Convention in May.

Gus.—It's a safe bet that all those who heard him to-night will be back again.

Mac.—He'll bring the crowd, he has the knowledge which the profession needs.

Ed.—Yes, and he can tell it.

Harold—Some dentists stay away from the meetings and then try to get the substance of the address from the magazine report.

Gus.—It can't be done; when you hear Weston Price, you get something that you cannot possibly get from a printed report.

Harold—Yes, he has a great personality, and the little sidelights and illustrations are wonderful.

Ed.—Me for the Calcium Lactate and Sun-kissed Cod Liver Oil.

Mac.—Yes, and we will be here to welcome him when he comes back.

Gus.—I would not miss him for anything.

Voice from Hamilton—He was good here, too.

* * *

To speak kindly of others, however great their imperfections, is the greatest charity in the world.

* * *

It will be very gratifying to the members of the profession to know that the exhibit space is being taken up very rapidly. This proves that the manufacturers and dealers are convinced that we are going to have a very successful Convention, and they are not making any mistake.

* * *

Hope for the best, prepare for the worst, and accept whatever the Lord sends.

* * *

Home—the place where you are treated the best and grumble the most.

The Trans-Canada Trip to the Canadian Dental Association Meeting in Vancouver

A SYMPOSIUM.

BY DRS. C. A. KENNEDY, J. C. DEVITT, T. N. MCGILL,
LORNE E. MACLACHLAN AND PERCY ST. C. SMITH.



THE C. D. A. Meeting, which was held in Vancouver in 1924, was a huge success, and will be remembered by those on the excursion as one of the most pleasant and enjoyable ever held. The members were most enthusiastic and are contemplating the formation of a similar excursion to the C. D. A. Meeting, which will be held in Halifax, N.S., in 1926.

The Dental Profession should "See Canada First," and this will be

an excellent way to visit the distant sections, in congenial company, and under the most favorable conditions.

C. A. KENNEDY.

* * *

New Year's evening, sitting watching the flames in the fire-place shooting up in their various fantastic shapes and colors, casting shadows in the dimly-lighted room, all seemed so cheerful with the family gathered round. It was an easy thing to remember back a few short months before and to bring up incidents and memories of the delightful trip we had experienced in company with the party who had wandered over the Continent so happily and delightfully together to the Canadian Dental Association Meeting in Vancouver.

Such a difference a few months make in many things. To-day it is cold and blustery, zero weather the rule, as compared with the 24th of July, when we collected ourselves and our baggage and yards of tickets at the stuffy, smoky, old Union Station, with the thermometer raging around 85 to 90 in the shade. But we were a happy, expectant party, in charge of Dr. C. A. Kennedy, of Toronto, and a special conductor from the C. N. R. to see we were properly arranged for.

The party from Toronto to Sarnia were all arranged in one chair car, but even if the day was hot, we were pleasantly employed in getting acquainted, with Gus as official introducer.

Halifax was ably represented by Dr. and Mrs. F. W. Ryan, and St. John by Dr. J. A. McGee; Gananoque, by Dr. and Mrs. A. H. Mabee; Ottawa, by Dr. L. E. MacLaughlan; Bowmanville, by Dr. and Mrs. J. C. Devitt and daughter, Beatrice; Toronto, by Dr. and Mrs. C. A. Kennedy, Dr. E. A. Grant, Dr. and Mrs. R. Gordon McLean, Dr. A. D. A. Mason, Dr. Thomas N. McGill, Dr. and Mrs. Percy St. C. Smith and Douglas, Dr. and Mrs. C. A. Corrigan, Miss Pearl Bartindale and Dr. and Mrs. Harold Clark; Dr. T. F. Gallagher of Montevideo, Uruguay, and Mr. George F. Bigham, Buffalo, N.Y., were also in the party. On the way to Sarnia, Dr. and Mrs. W. M. McGuire of Simcoe, and Col. and Mrs. W. G. Thompson of Hamilton, joined the party.

We left home expecting to see many different and wonderful scenes on land and water in our wonderful Canada, but wondered if we would see any more beautiful and prosperous than our fair Ontario, with its beautiful villages, towns and cities, magnificent farm lands that we were passing by as we made our way to Sarnia. The garden and fruit lands, with their good crops and prosperous homes, made a scene to be always associated with plenty and happiness. After we left Hamilton the country was more of the regular farm land type, with splendid crops

of Fall wheat, just ready to cut. Hay ready for the barn, oats and coarser grains, were a sight to see.

Sarnia was reached on time, with the *Huronic* at the dock, also the usual number of blue-clad officials in charge. How the porters and bell-hops do juggle with our valises and club bags from the vestibules of the car to the trucks that convey them to the boat! After they are properly spilled onto the wharf, the bell-boys load up with two or three under each arm, and a grand rush is made to the second dock, where the passengers are expected to identify their respective baggage, or some as near like them as possible, and see that they are delivered to your stateroom, magnificently and compactly furnished with two bunks securely fastened to the side wall. Col. Thompson spent most of the afternoon trying to trace his most important club-bag, which was finally located by the aid of the Purser, Steward, Captain and three bell-boys, in Dr. McGill's cell, with the usual excuse—similar size, weight, and fool bell-boy.

It was grand to sit on the deck of the *Huronic* and enjoy the cool breezes of Lake Huron on a perfect July afternoon. How it helped us to forget our dental worries and the heat of the cities and the train we had left behind for a time. Everyone was ready for a hearty dinner, served in the usual good style of a well-appointed boat. The evening was spent in a promenade around the deck, one-eighth mile, with a good concert and dance later on. Then to bed in our little bunks nailed to the wall, lulled to sleep, or kept awake, as the case may be, by the wash of the waves on the boat as we made our seventeen miles an hour through the waves and winds of Lake Huron. The early bird of the party, Dr. Mabee, started his usual parade at 6 a.m., a record he kept up for the trip. After a hearty breakfast, we were all on deck to watch the beautiful scenery of St. Mary's River, with Manitoulin and Mackinaw Islands standing out most conspicuously. Here we met the wonderful procession of big freight boats as they glided their majestic way up and down the river, with hoarse whistles of salute and orders as we met or passed them on our way. Some were wonderfully long and heavily loaded and low down in the water, or else high up out of the water if empty on their return for ore or wheat.

The Sault presented a magnificent sight. The white, tumbling rapids down the centre, under the bridge with the three American locks on the west and the Canadian on the east side of the river, busily locking through boats of great size, with many waiting their turn. We spent an hour and a half sightseeing in the Sault, and then away on the *Huronic* again, through the locks, past a mountain of pulpwood said to be worth three million dollars, past the big steel works and up the St. Mary's river for fifteen miles, past White Fish Point into Lake Superior

and still meeting the big freighters with their long line of hatch-covered decks.

It is now clear and cool, and we are glad to sit in the steam-heated saloons. Next morning broke clear and bright, with the sun rising over the Sleeping Giant of Thunder Bay to the right of our boat, with Welcome Island on the left, and away fifty miles in the distance an island was plainly visible on the American shore.

Ahead of us Fort William was to be seen, with its immense grain elevators and many freighters being loaded with grain, and also Port Arthur, with its grain elevators and pulp mills, giving us an idea of prosperity and plenty. Here we were loath to leave the boat to take our places on the train to Winnipeg.

The country from Fort William for the next 150 miles is very similar to all Northern Ontario. Little lakes, big lakes, streams, rivers, forests, bare, rocky hills, alternating with one another.

Rainy Lake was good to look at as we rattled our way around its shore for many miles, with its beautifully wooded islands lying scattered about.

After you get near Lake of the Woods, the land changes to a flat, swampy-looking country, that is not at all attractive. We came into Winnipeg accompanied by a real western thunderstorm, vivid lightning and oceans of rain, that lasted for five hours. The C. N. R. Station at Winnipeg is a credit to the Western City. Here we had just time to look the big station over and take a walk up Main and Portage Streets, with their unique way of lighting, their half-arch of lights placed over and across the streets.

Manitoba was crossed in the night to the tune of a big thunderstorm. The officials of the C. N. R. are to be complimented on the efficient and kind way they look after the travelling public. Mr. Payne, the official in charge of our party, made us all feel at home and looked after our comforts and wants in a most delightful way. Two sleepers, a diner and compartment observation car were supplied to the party for their trip across to Prince Rupert, each member having a separate compartment.

Next morning after leaving Winnipeg, we were up to see a vastly different country from old Ontario. Central Saskatchewan, with its wide prairie lands, entranced us. Some wheat crops looked well, but were a bit short. It is a mixture of good and poor districts, mostly flat and bare of trees, but some rolling country is seen with hills wooded with poplars.

The villages are built mostly of frame houses, which look as if they would be cool enough in winter. Every village station has its quota of grain elevators, from one to five, according to the prosperity of the

district. The prairie homes generally look small and lonesome to Ontario people, who are used to well-appointed country homes with their lawns, shade trees and orchards, and good out-buildings and fences. Some homes are surrounded by Manitoba maples and poplars and have fair barns, etc., and surely they are worth the trouble. Most of the machinery is left out in the open fields.

As we neared Saskatoon, we were in real flat prairie land, with very good looking homes. The sloughs and bits of water have lots and lots of wild ducks, hundreds being seen all along the way. Some prairie chickens and wild geese were also seen. After a good breakfast in the dining car, all were well and happy, some in the observation car, some enjoying a smoke, while some read or wrote, and all enjoyed the ever-changing scenery.

At Watrous we stopped for ten minutes and put our watches back an hour. This is real prairie country, but the crops looked poor, owing to dry weather. Typical prairie for miles and miles, it stretches level and peaceful. Here and there good big houses and barns, real ranchers' homes, with plenty of out-houses and clumps of trees around them; plenty of cattle and horses are also seen in the great fields. Then again is seen the little box of a house set down in a great lonesome-looking field of grain, with here and there a big yellow stack of last year's straw, sometimes covering a half-open shed. It all looks lonesome in a way, but has its call of distance and vastness, that I suppose makes the people want to stay on. Here and there the prairie roads or trails lead away seemingly to nowhere, with an occasional "Lizzie" or horse and buckboard to be seen on them. Everything was dried up as we neared Saskatoon, as they had had no rain for weeks. Here we begin to receive some of the Western hospitality. We are met at the station by a number of the Saskatoon dentists with their cars, and they surely did show us Saskatoon and as much of the country as possible in the afternoon; also had a splendid dinner for our party at the hotel. Saskatoon is a very prosperous-looking Western City, with a wonderful situation on the swift-running Saskatchewan River. Its University belongs to the Province and is a magnificent institution, built of white stone, and its architectural designs are most beautiful. Their High School, Normal School and Public Schools are very fine, a credit to any city. Dr. and Mrs. E. C. Campbell and Dr. S. G. Goodman and wife, of Gravelburg, Saskatchewan, joined our party here. We left Saskatoon on our way to Edmonton, and as we neared that city we saw vast improvements in crops, as they had had lots of rain.

The country around is very much like parts of Ontario—rolling, with hills well-wooded, and the Saskatchewan River making a beautiful sight, as we followed its banks for many miles. Here again in the

morning we were met by the dentists with their cars, taken through the rain to McDonald Hotel for breakfast, and afterwards driven about the city sightseeing until dinner time, when they again entertained us to a splendid dinner. Edmonton is a beautiful city, situated on the North Saskatchewan River, with a very fine bridge connecting the two sides, costing three million dollars. The homes are very fine, and magnificent schools, churches, University and Parliament Buildings are the rule.

From Edmonton the scenery gets more rugged and beautiful, great lakes, rivers and well-wooded hills everywhere. Arriving at Jasper Park at 10.30 p.m., our cars were put on the siding until we were ready to leave, a day and a half later. We were all up early, and after breakfast were met and taken in hand by Col. Rogers, the genial Superintendent of Jasper Park. He was anxious to see we had a good time while at the Park and made arrangements for our entertainment while there. This beauty spot in the Rocky Mountains, with its wonderful situation, surrounded as it is with immense, high snow-capped mountains on every side (as high as 11,000 feet), and with the Athabasca River flowing through its valley, makes a picture never to be forgotten. We were first shown through the Headquarters by the Colonel, and found it all unique and interesting indeed. Then the party were taken for a motor drive up Mount Edith Cavell. We were able to climb about 6,200 feet by motor, which sometimes made you wish for the safer roads of old Ontario. Some places we could touch the cliff from one side of the car and on the other look down hundreds of feet below. In the valley we could always see the swift-flowing Athabasca River, winding its way for many miles down the valley. The ever-changing view was a sight never to be forgotten. Mountain tops, with their glistening snow peaks, small rivers and streams flowing from glaciers; and finally getting so high we were up in the clouds. The ride down was probably more beautiful, as we had wider scenery before us. Rivers, small lakes, and mountain after mountain breaking into view as we curved and twisted down the side of the mountain. We did not need to step on the gas on the way down. The sense of danger in the ride is lost in your wonder and admiration as you go along. We finished up our drive at Jasper Lodge, the finest summer park hotel I have ever seen. The main lodge and cabins are all built of fir logs peeled of the bark and varnished. It has a capacity for 350 guests, with its many log cabins on the shore of Lac Beauvent. After lunch at the hotel, we spent the afternoon in driving and walking along the mountains, river banks, and exploring the great canyons and rapids.

We were glad to get back to the hotel and enjoyed a good rest and dinner after our strenuous day in the mountains. The hotel manager was very kind to us, explaining many things of interest.

Some of the younger members of the party stayed for the dance at night, while others were motored down the two miles of mountain road to the sleeping cars at the station. The dancers arrived several hours later.

We were joined here by Dr. and Mrs. George K. Thompson, Halifax; Dr. and Mrs. M. H. Garvin, Winnipeg, and Dr. and Mrs. Carmichael, Edmonton, and picked up next morning by the Prince Rupert Special we were soon over the heights of land winding along the sides of the mountains, with the road-bed just sticking in places to the sides of the cliffs, where enough rock had been blasted off to make room to get by. Some places we were along the banks of rivers and lakes and all at once we would shoot into the dark of a tunnel blasted through the side of the mountain. Across the height of land we picked up the Frozen River and started down the west side of the Rockies, following the ever-winding, mad-rushing Frozen River.

Mount Robson, with its towering sides of bare solid rock up 13,000 feet above sea level, is reached and our train stops here to give us time to wonder at its greatness and wonderful height. We were able, with the field glasses, to see the party from Edmonton who were nearing the summit that day. They could be seen as four dark specks on the white glacier near the top. This was the day that Dr. Thompson lost his cap overboard from the observation car, and it sure looked about as funny as Walter felt, as it bobbed about in the dust behind.

We next arrived at Prince George, a quiet little town in the mountain, with a population of about 1,500. Here the Frozen River is joined by the Bulkley and the two take their one way for Vancouver.

The Skeena River is next picked up, and we follow its banks to Prince Rupert. The scenery here is the best yet, as the river is very swift and runs through many deep, steep canyons, very awe-inspiring. Our train wound and curved along the cliffs along the river, sometimes hundreds of feet above the water. All around are snow-capped mountains with many glacier bed streams and small rivers rushing down the mountain side to join and swell the mighty Skeena. The road is so crooked that the engine and a number of the cars are always in view of the observation car, except when we are going through the tunnels, of which there are many, all the way from 100 yards to a mile long. We made one stop at a typical Indian village, Kitwanga, and spent 40 minutes seeing their primitive way of living.

At last Prince Rupert is reached and the Pacific Ocean is near. We arrived at 5 p.m., just 15 minutes late, surely a good record in so many miles of travel. The C. N. R. very kindly let us have the use of the sleepers and diner until the boat arrived at 8.30 p.m.

Prince Rupert is quite a progressive harbor city, built on a very

rough, rocky spot. It has a very fine natural harbor, the outlet for the Northern Branch of the C. N. R., and also a great shipping port for the numerous canneries and fishing outputs of the great Northern rivers and sea coast.

The streets are built of huge planks, supported in most places on large posts or piles, and are very steep in places. The stores and houses are built some on piles and others on rocky ledges, or anywhere they can be fastened on, and are often reached by flights of steps.

Here we saw the finest quality of roses to be seen anywhere, a fact that seems queer, as it is so far North. It is explained by the fact that the Japanese current comes in near the coast, and the result is a mild, damp climate that is never very cold. Dr. Frank Kenny joined our party here to attend the Convention.

We left for Vancouver on the *Prince Rupert* about 11 p.m., and enjoyed a good sleep on board the boat, as we wended our way down the West Coast of Canada among the numerous islands that are thickly dotted on the Pacific. We stopped next day at Ocean Falls, a pulp-mill town, said to be the largest in the world. The whole place, body and soul, is owned by the pulp-mill company.

The rows of houses are perched on the ledges on the mountain sides and are well-kept, with small, neat lawns in front, and plenty of beautiful flowers all about. Even the flowers and shrubs are supplied by the company, and the lawns are kept neat and trim by them.

The ocean trip down the coast was glorious in every way, in and out among large and small islands, some with very high wooded hills, and along the mainland with its rugged scenery of hills and mountains stretching away in the blue hazy distance.

Vancouver was reached Saturday at 2 p.m., and we were in a wonderful city, with the finest harbor that could happen, land-locked for fifteen miles with mountains protecting the harbor from the winds and storms of the great ocean.

Here we were met by the Vancouver dentists and separated to our various stopping-places, some in hotels and others with friends, to all meet again at the Hotel Grosvenor for dinner. A very pleasant incident happened here, when Dr. Gus Kennedy was presented with a wrist watch from the members of the party, just as a slight remembrance for the vast amount of time and trouble he had gone to in arranging all the numerous things about the trip, such as time-tables, stop-overs, and the details of our tickets, etc., and also the way he kept us in shape and happy on our way. Dr. R. Gordon McLean very ably made the address, and Col. W. G. Thompson the presentation. We had a couple of days to get settled and see some of the wonders of Vancouver, its

great parks and splendid bathing beaches. Then the Dental Convention commenced.

The Convention was held in the King Edward Collegiate. Dr. W. J. Bruce as Chairman of the Executive Committee, and the other members of local committees, are to be congratulated on the splendid way in which the Convention was carried out. All the papers and clinics were of a very high order. The meeting was well attended, when you considered the distance so many had to go. The committee did everything in their power to see that the visitors had a good time, arranging and providing for numerous motor sight-seeing trips, ocean trips, with dinner dances, etc., as a side line. The ladies of the party were also well entertained by the Vancouver ladies, with wonderful motor drives and entertainments, visiting the many wonderful parks and canyons that are so plentiful about Vancouver. The Golf Clubs were well patronized by the visiting dentists and their wives, many pleasant hours being spent there.

After the Convention closed the party broke up in groups or families, and sight-seeing was the order of the day. Some went to Victoria, Seattle and Portland; others visited friends and relations in different parts of British Columbia. Some went fishing, and others went home. The party was united again for the return trip by C. P. R.

Some of the remarks heard on the trip: Col. Thompson at Mt. Robson, "Nearly as high as the Mountain at Hamilton." Drs. Mason and McLean, "Too rough for golf." Dr. McGuire, coming to a tunnel in the mountain, "What would happen if we missed the opening?" Dr. Clark and Dr. Devitt, "Where is my camera?" Dr. Kennedy to Drs. Gallagher, Corrigan and McGill, "Call it a game and come to dinner." Everybody, "When do we eat?" Drs. MacLaughlin and Douglas, in chorus, when nearing a stop, "Where are the girls?" Drs. Mason, McGuire, McLean, Gallagher, and McGill, "Where are my golf outfits?" Dr. Maybee, "Who has my time table, Gus? Are we all here?" Poor old Saturation. Gus, "Time up; are we all here? All aboard!"

J. C. DEVITT.

(To be completed in next issue.)

GRASS LINE.—Grass line has some advantages over wire in orthodontic work. With it one can tie a firm knot round before ligaturing to the arch. This helps greatly with teeth whose further eruption is desired. It is difficult to obtain the required hold with wire. Grass line is a thin, strong silk thread, and is an ordinary item in orthodontic supplies.—*British Dental Journal*.

Recent Developments in Partial Denture Prosthesis*

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It has only been within recent years that dentists have begun, largely as the result of the work of such men as Cummer, Beach, Gabell, Roach, Nesbett, Nelson, etc., to realize the importance of the partial denture and to give it its proper place in conservative dentistry. The partial denture of the past has too often not only not been an efficient restoration of the lost teeth, but it has resulted in grave injuries to the remaining teeth and soft tissues of the mouth. It left behind a trail of caries and gingivitis which caused many good dentists to practically discontinue the making of partials. Bridges were used where they could be; and where the spaces were too extensive, or the remaining teeth in poor condition, full dentures were resorted to. This state was bad enough while the profession still felt that extensive bridges could be made; it became worse with increasing knowledge of the limitations of the fixed bridge and the consequent decrease in its size. To-day we feel that the fixed bridge is seldom indicated in cases where there are more than two or three pontics. What, then, is to be done in that great number of cases where spaces are too great for fixed bridge-work, but not extensive enough for full dentures? The only solution is an efficient partial restoration, which will restore masticating efficiency without injury to the structures remaining in the mouth.

EXAMINATION.—The necessity for a careful examination and study of the case is perhaps too self-evident to need emphasis. But many failures in partial dentures in the past have been due to a failure to carefully examine the case. There has been too frequently a tendency to insert teeth in place of the missing ones much as we would stick pegs in a board, without any attention to the possible ill effects on the adjoining teeth and tissues.

Some of the points which should be noted in an examination are:

1. General health of the mouth, the presence of caries or gingivitis, the patient's care of the mouth.
2. The form and position of the occluding teeth; a simple case may be made much more difficult by a badly tipped opposing tooth.
3. Abutment teeth, first whether they are vital; or if treated, whether

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they and the periodontal tissues are sufficiently healthy to be used as supports for the restoration. Second, their shape and presence or absence of decay.

4. The soft tissues which will be covered by the proposed restoration, whether thin and dense or thick and soft.

DESIGN.—The problem of design is very closely associated with that of support and retention. We must first consider whether the restoration will be borne by the soft tissues, or by the remaining teeth, or by both. Before considering the various methods of support which have been advocated it may be well to point out that this refers only to the tissues which support the denture during stress of mastication, and has no reference to the retention of the case in position. Early partials consisted simply in the replacement of missing teeth by the insertion of artificial teeth on a metal or vulcanite base. These were of esthetic value only and were generally not sufficiently stable to be of much assistance in mastication. To assist in retention wrought clasps, of various design, were introduced to grip the natural teeth on either side of the space. These did not, as a rule, alter the fact that the chief support was obtained from the soft tissues. It was soon noted that these cases settled, and then failed to occlude with the opposing teeth, also that the clasps moved gingivally on the teeth, sometimes cutting into and irritating the free margins of the gums. Bonwill, to overcome this difficulty, advocated the use of occlusal rests on clasps. This introduced a new complication, the seriousness of which was not realized until recent years, when large fixed bridges came into disrepute. The support had been shifted by the occlusal rests from the soft tissues to the abutment tooth. Where the restoration was a small one, consisting of one or two inserted teeth retained by clasps, with occlusal rests, on either end, the abutment teeth were probably able to carry the increased load without injury, and the condition is similar to that which obtains in small fixed bridges. But where two abutment teeth are called on to support more than two inserted teeth, the extra load on the abutment teeth is liable to prove injurious. Further, all restorations are not supported at both ends; they may be of the free saddle type, where only one end is supported. When the force of mastication is transmitted through the artificial teeth and saddle to the mucosa, it is compressed, allowing movement of the saddle in the direction of the force. Now if the saddle and retainers are rigidly fastened together there must either be a movement of the retainer on the tooth in the direction of the force, with consequent wear on the clasp and tooth and possible injury to the gingiva, if the clasp impinges on it; or if this movement is not possible, because of the presence of occlusal rests, a heavy strain is placed on the

abutment tooth. The work of Drs. Stillman and McCall has drawn attention to the harmful effects of traumatic occlusion and the injuries which may result. But the condition is more serious in partial dentures, since in this case, especially in the free saddle type, the partial acts as a lever, the extended arms of the clasp are the power arm, the part of the clasp nearest the denture is the fulcrum and the saddle itself the weight arm, so that the original force of mastication may be multiplied many times, depending on the relative lengths of the two arms of the lever. Two factors in recent years have drawn special attention to this effect. First, the introduction of the tight fitting cast clasp, which, because of its lack of slip, transmits to the abutment tooth the full force of any movement on the part of the saddle where the two are rigidly fastened together. Secondly, the investigation of the injurious effects of traumatic occlusion. These explain why many clasped abutment teeth become sore and eventually loosen.

It is only a few years since two closely related appliances were introduced to relieve the strain on the abutment teeth, the compound retainer and the flexible connector or stress breaker. While the compound retainer, where one part is fixed to the abutment tooth and the other to the denture, may have originally been introduced to be used on cases where the abutment tooth was more or less decayed, or to give firmer retention, it has of late come to serve more in the nature of a flexible link between the fixed retaining agent and the restoration proper. To-day the compound retainer and the flexible connector between retainer and denture have frequently been claimed to achieve two objects: the removal of strain from the abutment teeth and an equalized support for the restoration on soft tissues and abutment teeth.

The removal of strain from the abutment tooth, caused by movement of the saddle, seems the easier object of the two to be attained. Some of the compound retainers designed with this end in view have been constructed along faulty principles, in that they have only allowed movement in one direction, but the mandible moves laterally to some extent in mastication and movement may be in a number of directions towards the jaw. So that to be effective the flexible connector must allow free movement in any of these directions, else the abutment will be subjected to severe lateral strains. This type of flexible connector must then fulfil certain requirements:

1. *Simplicity*.—It must be capable of ready adjustment when making the restoration, since a complicated appliance which is difficult to insert prohibits its use, because of expense, to the average patient; and because of difficulties of technique to the average dentist. The simpler the appliance the less the danger of its getting out of order after insertion.

2. *Strength*.—The forces of mastication may be very great, especially when leverage is considered, and the appliance should not break down in use.

3. *Cleanableness*.—Some otherwise excellent appliances are decreased in value because of the difficulty of keeping them clean.

4. *Efficiency*.—Must allow of movement in the directions already outlined, no matter what the inclination of the abutment tooth; keep the saddle in light contact with the mucosa; and allow the soft tissues to return to their normal rest position after the pressure is removed.

The earliest types of stress breakers were introduced by Weinstein and Campbell, and consisted of variously bent spring wires, which formed a flexible connection between the saddle and retainer. They allowed free movement of the saddle in accordance with the amount of displacement of the mucosa, without transmitting strain to the abutment. While they are efficient, the technique required in adjustment is too difficult for the average case; further, the wires are of necessity quite small, and may be readily bent in use and do far more harm than good.

The associated requirement of equalized stress on both rigid and elastic supporting tissues at the same time, is far from the easy problem which it might appear to be at first glance. The remaining natural teeth are fixed and are capable of only exceedingly slight—if any—movement in response to the forces of articulation. The soft tissues which support the saddle are, on the contrary, quite soft and compressible in comparison. These tissues over the ridge, in a healthy mouth, may admit of compression, under mastication, up to a millimeter, and much more in those cases where the ridge is covered by an increased amount of soft tissue. The problem then is to obtain support jointly from two sets of tissues, one of which is movable, the other immovable. This is further complicated by the fact that it must be solved, not only for the patient who is accustomed to use only slight pressure in mastication, but also for the one who uses considerable force. Also the restoration must remain efficient under a certain amount of change in the relation of the supporting structures due to changes in the soft tissues. The feasibility, then, of obtaining equalized pressure would seem mechanically improbable.

There still remains the possibility of soft tissue support for the partials, and it would appear that the most hopeful outlook is along this line. There seems to be no valid reason why the soft tissues should not support the partial, when they support the full denture. But certain precautions are necessary:

1. *Saddle area*.—This should be large enough to carry the weight imposed. Dr. Chayes has laid down the rule that the saddle area must

equal the combined pericemental area of the missing teeth which have been replaced.

2. *Shape of support*.—Gabell has pointed out that the shape of the area covered should be such as to give the greatest stability; thus, if the slope of the supporting structures is all in one direction the strain on the abutment teeth will be much increased.

3. *Flexible connection between saddle and retaining element*, which should fulfil the requirements already laid down.

4. *Correct impression technique*.—Various methods have been advocated for taking the impression under biting stress; the result would be that these tissues are compressed and kept under pressure during all the time the appliance is in place, which would result in pressure atrophy and absorption of the tissues under the saddle.

There has been a marked change in the viewpoint as to the correct size for the saddle; early partials covered practically the entire vault, even where only one or two teeth were inserted. The gingival margin all around the lingual surfaces of the teeth was pressed on, generally resulting in gingivitis. Also the contact of the edges of denture with the teeth resulted only too often in tenderness and caries. The present tendency is to cover the minimum amount of area with a skeleton construction, avoiding contact with the remaining natural teeth and the structures around them. There is, however, a definite limitation to the smallness of the area which may be covered, since if the saddle is too small, the tissues are not able to support the weight and become inflamed and tender.

The all metal partial with soldered facings, or preferably some type of replaceable tooth, is growing more in favor. There can be no question that this is a decided advantage from the standpoint of hygiene and comfort, but there are unfortunate difficulties which hinder its wider use. Suitable materials are either in themselves quite expensive, or they involve processes which place them beyond the reach of the average patient. The assembly, also, of these cases is so different from that of a vulcanite case that the average practitioner hesitates to tackle them. Then, too, there is the question of change in the tissues under the saddle; while the vulcanite saddle can be readily rebased to meet the new conditions, the problem becomes a much more difficult one where there are metal saddles.

RETAINERS.—Scarcely a month passes without the appearance of a new retainer, generally of the compound type; but the clasp still remains by far the most popular. Round, half round, flat and cast clasps all have their advocates. The cast clasp, of narrow width and carefully constructed so as to present a smooth surface to the tooth, is a

most useful type of retainer, especially in those small cases where only one or two teeth are to be inserted, and a positive attachment is required. The round elastic wire clasp is gaining in favor, because of its ease of manipulation and small area of contact with the tooth, decreasing the danger of decay, also because it possesses a certain amount of flexibility. It may be used in a large variety of forms, depending on the conditions present in the mouth. The Bonwill double loop, or its modification of a loop on the lingual and a single strand on the facial; the Roach loop; and the modified Jackson crib, are among the more useful types.

No matter what type of clasp is used, there are certain cases, which have been pointed out by Dr. Cummer, where clasps should not be used:

1. It should not be used on short unsuitable teeth, because of the difficulty of keeping it free from the gingival margin.

2. Flat clasp close to the gingival margin, encircling little more than half the buccal surfaces and merging into rubber, carried high up on the gingival margin.

3. The shaped clasp, following the gingival margin.

4. The band clasp between two short teeth, with the base high up on the lingual, blocking free flow of saliva.

5. Clasps which do not allow for the settling of the denture, and which cut into the gingival margin after a short period of use.

6. Clasps without lingual support, which push the teeth lingually.

7. Clasps on teeth with lingual or buccal lean, pushing the teeth lingually or buccally on pressure of mastication.

8. Clasps above or below the widest cross section, pushing the denture or tooth out respectively.

BALANCED DENTURES.—One of the most valued points which Dr. Cummer has drawn attention to is the necessity for the balanced denture. The partial should always, where possible, have only two in preference to three or four retainers, to cut down the danger of injury to the abutment teeth. And where two retainers are used they should be at the point of balance of the denture, a straight line joining them should pass diagonally across the piece or bisect the median line at right angles. He calls this line joining the retainers the fulcrum line, and where it is not possible to have the fulcrum line coincide with the centre of balance, then the piece should be extended or indirect retainers used, so that the two will coincide. Perhaps one of the commonest examples of this type of case is the upper posterior restoration, where all the teeth posterior to the first or second bicuspid have been lost on each side. If this case is restored by saddles over the area of the miss-

ing teeth, which are connected by a palatal bar, and with clasps or other retainers on the bicuspid, then the posterior part of the restoration will tend to fall, as support is entirely at one end. This will bring a heavy strain on the abutments. To offset this it will be necessary to either carry the denture forward over the hard palate a distance equal to the length of the saddles, or run indirect retainers forward from the saddles to the cuspids. These are gold-platinum wires of about 14-g. carried forward and resting on the lingual surface of the cuspid. Then any tendency of the denture to fall in the rear is stopped by the pressure of indirect retainers on the cuspids.

IMPRESSIONS.—The one piece modelling compound impression method will not give the accuracy required for the construction of accurate partial dentures. Distorted impressions of the abutment teeth especially will result from its use. To obtain an accurate impression some sectional method is necessary in most cases. Quite a few technics have been introduced, some for modelling compound, others for plaster, and others for a combination of the two.

CAST.—A correct impression will be valueless unless an accurate cast is obtained from it. The cast should be made of some more resistant material than plaster, which rubs and chips during the various steps in making the restoration. Where an artificial stone is used, there is not only less danger of volume change due to expansion on setting than with plaster, but the articulation is more accurate due to the fact that the stone teeth on the cast are not worn and broken during setting up.

Any discussion of the recent advances in partial denture work would be incomplete without a brief reference to the work on anatomical articulation which was given such an impetus by the articles and by the visit of Prof. Gysi to America a little over ten years ago. There is as much or more need to carry out these principles in partial denture work as in full denture work. If the position and shape of the inserted teeth does not harmonize with the conditions present in the mouth, the restoration will be a failure.

Such are some of the tendencies in modern partial denture work, and while much has been done much remains to be done before we can feel that partial denture prosthesis has reached the status of an exact science. And there is need for our best work in order that we may realize our professional ideals in the restoration of the efficiency and the conservation of the remaining tissues of the semi-edentulous mouth.

The Journey of a Meal From Table to Tissue Through the Digestive Tract

Being Extracts from "The Commonsense of Health," by Stanley M. Rinehart, M.D. Copyright 1924 by George H. Doran Company, Publishers.

FIRST INSTALMENT.

IF we were all as physically active as our early ancestors, if life were as simple and uncomplicated with us as it was with them, when men had to hew and dig, to hunt and carry and labor with their hands, we would not need to concern ourselves with the subject of what to eat and would be interested only in the problem, how to get enough of it. We should be like the very old lady who was asked to what one thing more than any others she attributed her longevity. After a moment's serious thought she replied: "I think it was vittles!"

But life is not as simple as it used to be; it is complicated by a great many things, such as hurry, worry, sedentary occupations; and rich viands, without which our forbears managed to get along very well.

In consequence there are all kinds of sectarians in diet who are endeavoring to solve the problem, each group not only for themselves, but for the rest of us. And they are enthusiastic and vocative, and all are addicted to the pen or the typewriter.

Among these various sects are the Fruitarians. They eat nothing but fruits and nuts. Simple Lifers, they are called in England, and they go about the country eating little and wearing not much more. Then there are the Vegetarians, who eat nothing that does not grow above ground. And a sub-sect of the Vegetarian family who refuse all cooked foods, but dote on raw grains. And the Lacto-Vegetarians, who add to their daily menu milk, butter, cheese and eggs. At the other extreme are a few persons who eat meat only, or at least they go for a more or less extended period on an exclusive meat diet.

And there are no-breakfast devotees, who quote from *Ecclesiastes*: "Woe to thee, O land, when thy king is a child and thy princes eat in the morning!"

The very orthodox of this sect eat but one meal a day and periodically they fast. Extremists have set up fasting as a cure for all curable conditions, and they have been known to deny themselves all sustenance for many days, thus emulating Dr. Tanner and Upton Sinclair.

In all this maze of diction and contradiction regarding food there is some truth. There are certain essential facts which are so well established that they may be set forth briefly within the limits of this article.

But perhaps it would be well to begin with an understanding as to what food is, what we do to it, and what it does for us.

The lowest form of animal life is a mere speck of jelly-like material, or protoplasm, having no permanent form and no organs of any kind. The amoeba, which floats in the water, is an example of this simple life. When the amoeba comes in contact with a smaller object it folds itself around it and digests it if it is digestible. Any part of the amoeba has the power of digestion and absorption.

Animals a little higher in the scale of life have a pouch with a single orifice, into which food is taken and from which that part which cannot

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be used is ejected. Still higher animals have two orifices to their food receptacle.

From this on, as we go higher and higher, the digestive apparatus becomes more and more developed, until we reach man, who has the most intricate and complex of all, a digestive tract more than twenty-five feet long, with many accessory organs.

But food in one's stomach is not inside the body any more than the tiny speck is inside the amoeba that has just enfolded it. Food must be prepared for absorption and then absorbed before it really gets into the body. In order to understand what we do to food and what it does for us, suppose we follow a meal into the body proper, and see what becomes of it.

Let the one who is to eat this meal be hungry. Really hungry. What causes hunger? Need of food, of course. But what causes the pangs of hunger? Some contractions of the stomach. The stomach contracts

rhythmically when food is present, but these movements are strong enough to become uncomfortable when food has been denied a long time. The expression, "gnawing hunger," is based upon a real sensation.

Also let this meal be a good, ordinary dinner, of sufficient amount, neither stinted nor too abundant. Here is the menu: Consomme, steak, a green vegetable, potatoes, a salad, bread and butter, and a sweet dessert, ice-cream if you please. The beverage shall be milk because it contains all necessary food ingredients. Coffee and tea are not, properly speaking, foods.

Before being called to the table there is an appetizing odor from the kitchen, and immediately one's "mouth waters" in anticipation. Savory odors cause activity of the salivary glands because saliva is the first aid to digestion. And, although it causes no sensation, the stomach waters also. The gastric juices are beginning to pour out. Unsavory food will not cause this phenomenon and lack of appetite will prevent its occurrence, so that digestion will be delayed.

Pleasant or unpleasant emotions also have a great influence upon digestion. Dr. Lusk says:

"The appetite is like a magic wand, influencing the whole of the digestive process. Fear and anger lead to a parched throat, so that food cannot be well digested under these circumstances. The appetite is affected by the atmosphere of cheer at the table. Neither scolding parents nor snarling children facilitate the digestion of the Christmas dinner."

But in this instance the appetite is sharpened by hunger and by the taste of the food, flavor depending largely upon the sense of smell. And the surroundings are pleasant. Nothing present, past or future, will spoil the digestion of our meal.

First, the consomme. There is not much nourishment in clear soup; most of that has been strained out, in the solid ingredients. But its use is chiefly as an appetizer, further to stimulate the pouring out of the digestive juices.

Then comes the solid food, steak, bread and butter, and the vegetables, which will engage the attention of the teeth. Human teeth are of two kinds, those characteristic of flesh eating animals and those possessed by the vegetarian. This fact should settle the question whether man was intended to live exclusively upon vegetable food.

How long should each mouthful be chewed? That depends upon the kind of food. Digestion of starch begins in the mouth, where the saliva starts the chemical change of starch into sugar. Starchy vegetables should be thoroughly masticated and mixed with saliva. Flesh-eating animals bolt their food. Watch your dog eat meat. His teeth are

meant chiefly for tearing and rending. This is not to advocate the bolting procedure on the part of man, but merely to indicate that meat need not be so finely divided as vegetables. If it becomes too pulpy it is less easily acted upon by the digestive juices, and also it becomes tasteless and insipid before it is swallowed. On the other hand starchy foods are rendered more and more palatable, because they become sweeter.

In the mouth, then, the vigorous ingredients of this meal are broken into fragments, mixed with saliva and mucus, and swallowed, the mucus being useful as a lubricant, to facilitate swallowing. Digestion of starch has begun, and the whole mass has been softened by moisture.

When it reaches the stomach it finds some gastric juice waiting for it, an amount that gradually will be increased during the succeeding three hours until about a pint has been used. The principal ingredients of this fluid are pepsin and hydrochloric acid, the latter being necessary in proper proportion to enable the pepsin to act. If there were too little,

"Food in one's stomach is not inside the body any more than the tiny speck inside the amoeba that has just enfolded it. Food must be prepared for absorption and then absorbed before it really gets into the body."

digestion would be retarded, and if there were too much, there would be that uncomfortable sensation commonly known as "heartburn," a very inappropriate name for over-acidity.

But before this meal goes any further it will be necessary to use other terms in describing it than meat, vegetables, bread and ice-cream. It consists of proteins, carbohydrates, fats, many minerals, water and certain waste material which cannot be used.

Proteins are the nitrogenous elements of food. They are found in all flesh and in nearly all vegetables, but in varying proportions. The starchy vegetables and grains, such as potatoes, and the kernels of the grain, for instance, contain an extremely small amount of protein.

All protein comes primarily from the vegetable kingdom. Animals have no mechanism by which they can transform nitrogen into flesh. But plants have that power and animals get their protein from plants. When we eat meat we get our protein second hand.

But this meal which we are following contains both vegetable and animal protein; in the meat, in the wheat bread, in the salad, even in the ice-cream; and the stomach begins their digestion. The gastric juice

does not merely dissolve food, it begins a series of chemical changes which are completed further on. When finally the proteins have been made ready for absorption, they have been transformed into eighteen different compounds, from which the tissues will take according to their individual needs.

The carbohydrates, which are the starches and sugars, are not changed in the stomach, except that the starch is acted upon by the saliva which has come down with it from the mouth. The fats also pass into the intestine unchanged.

While the meal is mixing in the stomach there will be time to mention the famous Alexis St. Martin case. In 1832 Alexis St. Martin's gun discharged prematurely, tearing a great hole in his abdomen. He survived the accident, but his wound never healed. By good fortune, in the small town near the Canadian border where he lived there was a United States army surgeon named Beaumont, who possessed an inquiring mind. This surgeon cared for the unfortunate St. Martin and after he was able to get about, took him into his employ.

For several years Beaumont studied stomach digestion through the unhealed wound. His reports of these observations marked the first great advance in this hitherto obscure subject.

But very little was known of the movements of the stomach until the X-ray disclosed them. If, instead of an ordinary meal, it contained a simple food like cornstarch, or oatmeal, and a substance impervious to the X-ray, its movements may be watched through the screen. The substance most frequently used for this purpose is barium sulphate, the minute particles of which coat the stomach walls and outline it plainly food. The action is called *peristalsis*, and it is continuous throughout in shadow on the screen.

Have you ever watched a horse swallowing and noticed the successive waves which pass along its throat? These are caused by muscular contractions which narrow the tube behind and push forward the water or the entire length of the digestive tract.

In the stomach which contains the drug these rhythmic waves may be seen following one another, gradually mixing and advancing the contents, until they reach the exit, where at intervals the door opens and they are ejected in spurts into the intestine.

There is time to describe another interesting experiment by means of which these movements have been still further studied. After the barium sulphate meal has been swallowed, let the person to be observed take a capsule containing a little of the pure drug. It can be seen as a small and darker shadow, passed over by successive waves, but gradually moved on, like a cork upon the surface of a pond.

In this manner food is mixed, partially digested, and finally passed out into the intestine where further and more complicated processes await it.

To return to the dinner which we have set out to follow, before it leaves the stomach it has become semi-liquefied, of about the consistency of a thick broth. Very little of it has been absorbed because the stomach is almost exclusively a mixing chamber.

The small intestine is also lined with glands that secrete digestive fluids, and into it are poured two very important elements, bile from the liver and pancreatic juice from the pancreas. The latter helps to complete the digestion of the proteins, the sugars and the starches. Another important function is to break up the fats. But it cannot digest fats with-

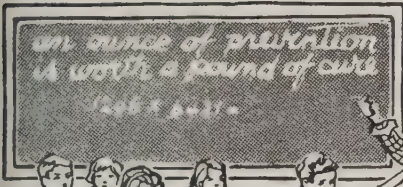
"The appetite is like a magic wand, influencing the whole of the digestive process. Fear and anger lead to a parched throat, so that food cannot be well digested under these circumstances. The appetite is affected by the atmosphere of cheer at the table. Neither scolding parents nor snarling children facilitate the digestion of the Christmas dinner."

out the aid of bile. Bile and pancreatic juice must always work in combination.

There is a very ancient medical joke which runs: "Is life worth living? Well, that depends upon the liver." It is literally true that life and health do depend upon the liver perhaps more than upon any other single digestive organ. The normal secretion of bile is about a pint in twenty-four hours. It has many uses, among which are to assist the pancreatic juice in digesting starches, proteins and fats. Fats, even when finely divided, as emulsions, cannot be absorbed. The bile changes them into soap, which is soluble. This process is much the same chemically as occurs in soap factory.

Bile also helps the forward movement of the digested food, and hastens the progress of waste material. If it were not for the bile we would all be poisoned.

And the liver is a storehouse for fuel, a coal bin, if you please, in which sugars are kept for future consumption, and fats, also. Sugars and fats are our chief sources of heat.



School Dentistry

This Department is Edited by
EDMUND A. GRANT, D.D.S.

Director of Dental Services—Department of
Public Health, City Hall, Toronto



We are anxious to receive for publication in this Department reports of work carried on in School Dental Centres anywhere in Canada. Papers on any phase of Pediodontia would also be welcome.—E.A.G.



WHEN the American Dental Association met in Cleveland in 1923, one of the most interesting features was an International Oral Hygiene luncheon. A number of stirring six-minute addresses were given by leaders in the Oral Hygiene movement from all over the Continent. One of the most inspiring of these was given by Dr. Grant H. Smock, of Erie, Pa., and, as it answers a question which a great many in the profession are asking to-day, it is reprinted here in the hope that it may prove helpful.



HOW TO FINANCE A LOCAL CLINIC.

GRANT H. SMOCK, D.D.S.,
*Erie, Pennsylvania.**

THE only easy thing about a dispensary is getting the money, but, our relation to this money must first be clear.

Where there is a financial problem, there is always another one back of it, and that problem is understanding. They say a woman is behind all trouble. Her name is Miss Understanding. The moment people understand a proposition, if it is good, they are for it.

People respect us as a health-giving profession more than we realize. They still have some of the old-time reverence for the priest-doctor, and

* Reprinted from American Dental Journal, December, 1923.

respect us even more than we deserve. If the profession is united, the community will follow.

Civilization has damaged the bodies of our youngsters and civilized men must pay the price.

All constructive work is preceded by inner communion with one's good Spirit, studying God's plan with men and getting right one's self.

Many dispensary propositions have been killed by the dentists themselves, many communities having shown themselves more willing to furnish money than dentists have been to handle dispensaries, in an altruistic way. In other words, financial backing will be just as strong as the spirit and character of the men striving for the dispensary.

When the profession of your town is ready, go to whatever group seems most logical. Your school officials, directors of Community Chest, or City Council. Go first to the individuals, not to the group. A good dinner, a cigar, and an evening spent with one of them at a time will usually suffice, but, be concrete and know the subject first yourself. Personal contact with one man will do much, but abstract talk to a group is weak in comparison.

Sell the idea to your Superintendent of Schools, then to each member of the Board in private conference. Never talk to a man until you know your subject, and unless he knows you and knows what your talk is worth.

If you don't know Mr. Jones, whose support you need, and he doesn't know you, get someone whom he does know and trust, to talk to him, even if it takes a month to prepare your man to hold the conference with Mr. Jones. Be prepared to tell hard-headed business men the policies of the proposed dispensary—who will be the patients, who will do the work, who supervise, what it will cost, and also what it will save. Create demand; people will pay for anything if they want it.

If a dispensary is a success, and grows with increased funds, the profession must retain absolute control of it, and not dump it into the hands of politicians. This work should, and eventually will, be all financed out of the taxes, but if your School Board is deaf to you, start something with your community chest, or whatever semi-public body you can connect with. Show them that the community is caring for all other needs of the poor—rent, food, fuel, clothing, everything, in fact, except health, yet, an actual saving will be made by restoring to health of many who could thus become self-supporting. This is not the burden of the physician or dentist, but of the public. The community is doing everything else; they should do this. The public believes in free bridges, schools, and paved roads, but they do not expect the contractor or teacher to furnish them without pay.

This dispensary proposition is not a paper wad to be shot at a School Board and forgotten. It is a wonderful seed, which must be planted in whatever soil you have at hand, and, if watered and fertilized, will always grow and bear fruit.

To summarize: Educate yourself and your profession, show the need to the proper authorities until they understand, then nurture the plant with fidelity.

The community will support you with money, if there is understanding. "Money, hearts and brains will pleasantly agree, when I know you and you know me."

As a concrete example of what may be done in a small community, the following report received from Dr. Hindson of Lambton Mills, Ontario, is noteworthy.

Dr. Hindson graduated in 1923, and in less than a year was able to induce the School Board of Lambton Mills to put into force a very effective scheme of Dental Service.

Dr. Hindson is to be congratulated on the results secured, and this report should be an incentive to many others similarly situated.

* * *

OUTLINE OF WORK RE DENTAL CLINIC IN LAMBTON MILLS SCHOOL.

I SUBMITTED the proposition to the Public School Board of establishing a Dental Clinic in connection with their school, outlining the advantages of careful attention to one's teeth when young, etc. This was discussed at the Board meetings, and I was personally present and went into any details that were necessary. The Board thought it was a good idea, and they went through the necessary procedure of putting it before the taxpayers, etc., in order to adopt the suggestion. My procedure was as follows:

I examined the entire school, room by room, and marked on the cards (secured from Dr. Grant, Department of Public Health, Toronto) the number of operations necessary. This card was to be taken home by the student, and the parent was required to sign name, giving me authority to go ahead with the work.

I do all the dental work at my own office (about one block from the school) and supply all the necessary material. The children are sent in groups of two or three, and as one goes back to the school, the teacher sends another one on. I usually have between four and five students each day.

I might say that I only have the Lambton School for two weeks of each month, and do the work in the mornings, from nine until twelve,

and on Friday in the afternoon also, from one thirty to three-thirty. For this work I receive a salary of \$75 monthly.

I have just completed a ten-month period, ending 12th December, 1924, and below give you in detail the different operations performed during that time:

Number of children examined	227
Number of children found with defective teeth...	194 or 85%

Treatment given:

Number of temporary teeth extracted	206
Number of permanent teeth extracted	35
Fillings (temporary teeth)	279
Fillings (permanent teeth)	306

You will notice the most of the work was confined to amalgams, cements, extractions, prophylaxes, dressings and treatments. In cases where gold or silicates were needed I advised the parents of the same and asked that it be attended to immediately.

D. HINDSON, D.D.S.,
Lambton Mills, Ontario.

* * * *

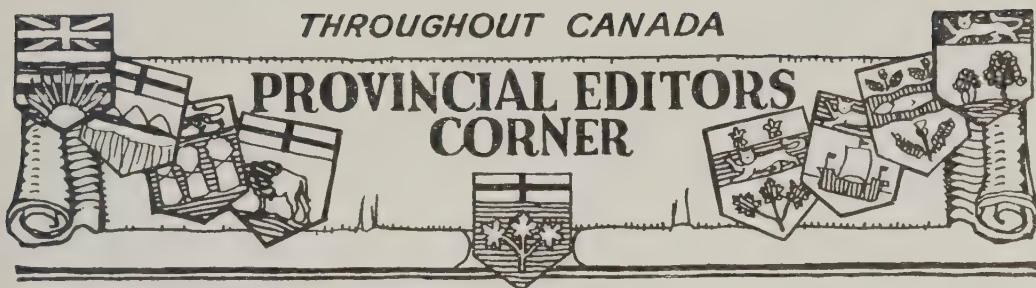
DR. E. W. FULLER, London, Ontario, Chairman of the School Health and Physical Education Section of the Ontario Educational Association, informs us that a very interesting programme is being arranged for the Annual Conference this Easter, April 13th to 15th.

This is a splendid opportunity for school dental officers to meet and talk over their problems, and also meet with school medical officers and school nurses, in the general sessions when the larger health problems are discussed. Each year sees an increasing number from points all over Ontario in attendance, and this year is expected to be no exception.

Any dental officer in Ontario who has a report to present or any special problem he would like discussed, is advised to communicate with Dr. Fuller, 214 Dundas Street, London, Ontario.

Full details of programme will be published in the next issue.

TO ROUGHEN OR ETCH AN INLAY.—It is very important to cover, carefully, the part not to be treated with wax. Apply hydrochloric acid to the exposed part, and then treat with mercury. When the desired etching is sufficient, heat in flame and plunge in acid bath, wash and dry, and then you will find your cement will securely hold.—*Dental Science Journal of Australia.*



British Columbia—Ray H. Wilson, D.D.S.
736 Granville Street, Vancouver.

Alberta—JOHN W. CLAY, D.D.S.
914 Herald Bldg., Calgary.

Saskatchewan—C. W. PARKER, D.D.S.
Imperial Bank Bldg., Regina.

Maritime Provinces—J. STANLEY BAGNALL, D.D.S., 34 Larch St., Halifax, N.S.

Manitoba—W. W. WRIGHT, D.D.S.
767 Warsaw Ave., Winnipeg.

Ontario—LIEUT.-COL. W. G. THOMPSON,
28 King St. West, Hamilton.

Quebec—ARCHIE N. JENKS, D.D.S.
Medical Arts Bldg., Montreal, Que.



MARITIME PROVINCES.

THE regular monthly meeting of the Halifax Dental Society was held on the 20th of January. This was one of the best attended meetings of the year.

The paper of the evening was given by M. J. Carney, M.D.C.M., on "Some Oral Manifestations of Systemic Disease." Dr. Carney dealt at some length with the appearance of the tongue in different systemic conditions, also with symptoms of lead poisoning, mercurial poisoning, etc.; stated that the Medical profession were gradually getting away from the idea that the removal of infected teeth was all that need be done in the case of focal infection disease; that it was necessary to go deeper than this, since teeth would not become infected unless the body was below par. Therefore in seeking for the cause of the infection of the teeth it was also possible to discover the cause of the focal infection disease. Dr. Carney felt that there was every need for the removal of infected teeth, so that the load on the system might be decreased, but that the matter should not end with this.

Dr. G. K. Thomson then outlined some plans for the C.D.A. Convention in Halifax, August, 1926, paying particular attention to the possibility of making special arrangements for those who were coming out from Europe to attend the International to also attend the C.D.A. Meeting.



Dr. C. E. MacIntosh, (Dal. '24) after spending the summer in practice in St. Pierre et Miquelon, has opened an office in Bellevue, Alta.

Dr. Angela St. J. Magee, (Dal. '24) is doing post graduate work at the Rochester Infirmary.

Dr. B. Shaffner, (Dal. '24) is in London, Eng., getting ready to write the Dental Board Examinations.

Dr. R. R. Dalglish, (Dal. '24) formerly associated with Dr. G. B. Richmond, has opened an office for himself in the Hennigar Block, Sydney, C.B.

Dr. L. M. Baxter, (U. of P. '24) has taken over the offices formerly occupied by Dr. F. W. Johnson at 90 Gottingen St. Dr. Johnson has moved to St. Paul Bldg.

J.S.B.

* * *

ONTARIO.

TORONTO ACADEMY OF DENTISTRY.



SOME of the members of the Academy are interesting themselves in the organization of a small choral group for service during conventions and other dental meetings. There is a special need for tenor voices. Those willing to assist or who are able to suggest others will please communicate with Doctor G. Vernon Fisk, 2 Bloor St. East, Toronto.

* * *

The following judgment was handed down by Judge John G. Gauld in the Ninth Division Court of the County of Wentworth on 3rd February, 1925:

IN THE NINTH DIVISION COURT OF THE COUNTY OF WENTWORTH.

REX v. W. F. STURGESS.

REX v. B. DAVIDSON.

The Respondents were charged under the Dentistry Act before George Frederick Jelfs, Esquire, Police Magistrate in and for the City of Hamilton, and were acquitted on the 2nd day of November, 1924.

C. W. R. BOWLBY, *for Appellant.*

J. A. SWEET, *for Respondents.*

The Respondent Davidson is a graduate of the Royal College of Dental Surgeons. Sturgess is not. He does mechanical work for four dentists, including Davidson.

The evidence disclosed that one Kells called at Davidson's office to see about getting a set of teeth. He was not in and the lady in his office sent him to the Respondent Sturgess. Kells saw Sturgess on 22nd

September, 1924, and an appointment was made to meet in Davidson's office at two o'clock the next day.

Sturgess and Kells met at the appointed time and place and Sturgess took the impression from which a set of teeth was made. Davidson fitted the teeth and received \$30.00.

The Magistrate in summing up said: "I am going to say that in my judgment that might be strict law, but strict injustice, to fine a man who had just tried to help another in one instance only."

The evidence established that Sturgess, who is not a member of the College, performed a dental operation for reward and I find him guilty thereof, and in view of the relations existing between the Respondents as disclosed in the evidence, I impose a penalty of \$50.00.

Davidson, by accepting the impression made by Sturgess, having the plate made therefrom, and collecting the fee, permitted Sturgess to perform a dental operation on Kells, contrary to sub-section 2 (b) of By-Law 43, but I can find nothing in the Act that authorizes a prosecution against him. It would appear that the matter is one to be dealt with by the Discipline Committee of the Royal College of Dental Surgeons.

The appeal as to Davidson is dismissed.

Success being divided there will be no order as to costs.

(signed) JOHN G. GAULD.

* * *

MANITOBA.



E have some dentists here who have made a name for themselves with their respective hobbies, and mention might here be made of Dr. J. F. Taylor, with flowers and vegetables; Dr. H. J. Merkeley, with bees, and Dr. S. B. Bailey,

with flowers.

* * *

Readers will be interested to know that Mr. S. A. Blair, of the Ash-Temple Company, was the campaign manager for Mayor-elect Licut.-Col. Webb.

* * *

Winnipeg has approximately 50 more dentists than it had three years ago. Since the population has not increased and business conditions might be better, this big increase of dentists has had a marked effect.

* * *

Dr. G. J. Clint is in his 51st year of dental practice.

ALBERTA.



THE Edmonton Dental Society entertained the Directors of the Alberta Dental Association at dinner at the MacDonald Hotel on the evening of January twelfth. Doctor L. V. Janes presided, and ably welcomed the visitors. A splendid programme was put on, including a paper on the extraction of impacted third molars, read by Doctor A. E. Hennigar of Calgary. An interesting discussion led by Doctor G. Hope and Doctor Jas. Macpherson, followed the paper.

* * * *

Doctor Elmer Wright, of Calgary, has sold his practice to Doctor Jas. Zimmerman, of Taber, who has now commenced practice in the Herald Building, Calgary. Doctor Wright has left for Vancouver, where he expects to again take up dental practice.

* * * *

The Board of Directors of the Alberta Dental Association met in Edmonton on Monday, January 12th for their regular semi-annual consideration of the business of the association.

Among a large number of matters of local importance came up the question of co-operating in a scheme, fathered by the Winnipeg Dental Society, for the revival of the Western Canada Dental Association. In the last two months of 1924, Dr. M. H. Garvin of Winnipeg had written Doctor Leslie McIntyre, the president, and the various members of the Board, giving a detailed scheme of organization, and urging that Alberta join with Saskatchewan and Manitoba at Winnipeg, in May, 1925, for the purpose of bringing the dead organization back to life.

An excellent constitution (with the exception of a few minor points) was prepared at Winnipeg and copies distributed. Prominent American clinicians agreed to attend, and the stage was all set by our friends in Winnipeg for a successful and profitable meeting.

The board had to consider three proposals:—

(1.) In July last the Association had voted \$2,000 to be expended in providing an outstanding man to give a clinic in Edmonton, Calgary, Medicine Hat and Lethbridge during 1925.

(2.) In August at the Canadian Dental Association meeting half a dozen enterprising members of the Spokane Dental Society met the thirty-odd Alberta men at the Convention, and urged that Alberta link up with Washington, Oregon and British Columbia, in a meeting at Spokane in March, 1925. This was followed shortly by an official invitation to the Secretary, Doctor Hennigar.

(3.) In the fall the Winnipeg project as explained above was offered.

The members of the Board found that there was sympathy expressed with the idea of forming a Western Canada Dental Association, but that dentists in most parts of the Province were in favor of the local clinic idea, as passed at the Association meeting. It was pointed out that the local meetings would be attended by a large percentage of the two hundred dentists in Alberta, while a much smaller number would gain a benefit if these local meetings were called off, to support the convention at Winnipeg.

Under these circumstances there was no alternative but to express regret and to carry through the local plan, leaving the question of co-operation to be considered at a later date.

This explanation is offered to prevent possible misunderstanding of Alberta's position. It was not through lack of sympathy with the idea of co-operation in Western Canada, but the demand for local clinics which makes it necessary for Alberta to carry out her own plans for the year 1925.

* * *

The regular meeting of the Edmonton Dental Society was held on February 3rd, at the Macdonald Hotel. Dr. J. G. Roberts gave an interesting talk on Dental Pathology, illustrated by lantern slides, and a specially prepared group of Dental Radiographs.

J. W. C.

* * *

BRITISH COLUMBIA.

HE following is the list of officers elected at the last meeting of the B.C. Dental Society:—President, Dr. J. S. Bricker; First Vice-President, Dr. T. R. Peden; Second Vice-President, Dr. Steed; Secretary, Dr. E. Fraser Allen; Treasurer, Dr. Roy D. Shortreed.

The B.C. Society is sending a major clinician, Dr. F. P. Smith, of New Westminster, to the joint B.C., Alberta and Washington State Convention which is being held in Spokane in March. The Washington boys have asked for the amalgam and full denture clinics (Vancouver Study Clubs) as held at the Dominion Convention here this summer.

The Vancouver Dental Society commenced the winter term with an ambitious programme.

The following are the officers:—Honorary President, Dr. T. W. Snipes; President, Dr. W. K. Sproule; Vice-President, Dr. R. L. Pallen; Secretary-Treasurer, Dr. Ray H. Wilson; Executive Committee, Dr. Norman Guy, Dr. T. R. Peden, Dr. Ralph Hall, Dr. J. S. Bricker, Dr. W. A. Loveridge.

For the first meeting in the fall the Vancouver Dental Society was fortunate in securing Dr. Frank Hergert, of Seattle, Wash., the leading radiologist of the Pacific Coast. His address was "The Technique of a full mouth X-ray examination for the General Practitioner." The carefully prepared paper, the excellent lantern slides and the general discussion of the paper made this a memorable evening.

The Vancouver Society has four study clubs this year—operative, full dentures, gold inlays and baked porcelain. Each club has a good attendance, keen enthusiasm and willing workers.

Dr. R. W. Conn, of Edmonton, Alta., has opened an office in the Birks Building, specializing in Exodontia and Radiodontia.

Dr. A. F. Dyer, of Regina, Sask., has bought the practice of Dr. T. W. Snipes, who has moved to Pasadena, Calif.

Before the departure of Dr. T. W. Snipes for Pasadena, Cal., the Vancouver Dental Society tendered him a complimentary dinner at the Shaughnessy Heights Golf Club. Forty members were present and the dinner, entertainment and speeches made the evening unforgettable. "Tommy" was presented with a suitably engraved gold watch and "chain" by the society. At a later meeting of the society, honorary membership was conferred on him in recognition of the great services he has done for the profession.

Dr. M. J. Heaney, of Calgary, Alta., has opened an office at 825 Granville Street.

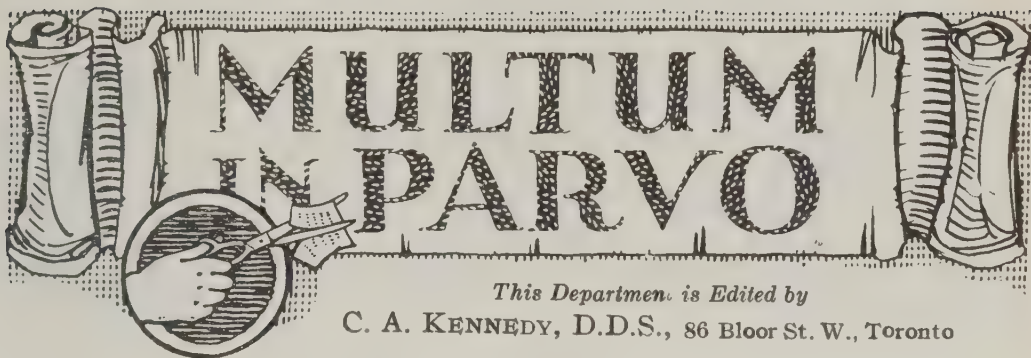
Dr. "Reg." L. Coldwell has left for Pasadena, Calif., much to the regret of the Vancouver men, as he was a great favorite. His departure was the occasion for a farewell dinner, at which he was presented with an appropriately engraved cigarette case. "Reg's" speech on receiving this gift will live in the annals of history as a masterpiece.

Dr. T. Heard, of Revelstoke, B.C., has opened an office at 825 Granville St., and is specializing in periodontia.

Dr. J. Calvin Foote has recently opened an office in Victoria.

R.H.W.

INLAY PATTERN FOR INCISAL-STEP CAVITIES.—Some difficulty may be experienced at times in withdrawing the pattern intact from those cavities in which an incisal step, with a small shaft at the end, is employed. The pattern is made in the usual way and, before withdrawing, a narrow strip of 22 karat or pure gold plate, or fine wire, which will be a very loose fit, is heated and passed up into the shaft. This small piece of gold should be sufficiently long to be well engaged in the investment, and the whole pattern is then invested and cast in the usual way.—*Dental Science Journal of Australia.*

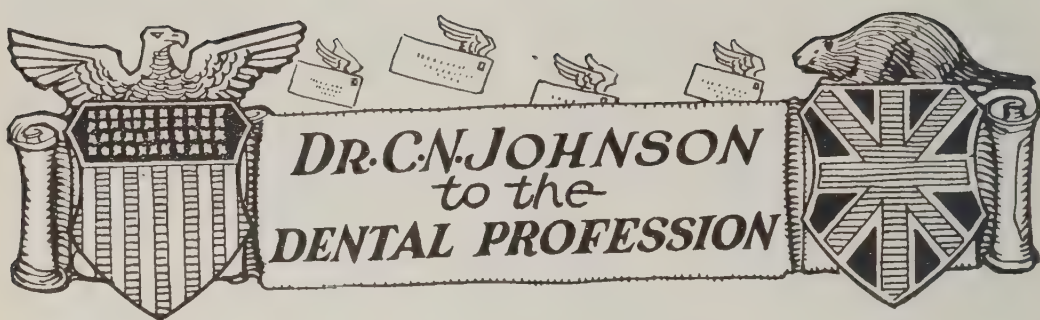


OZICHLORIDE OF ZINC TEMPORARY FILLING.—Ozichloride of Zinc temporary filling is prepared as follows:

Liquid—Saturated solution of Merck's U. S. P. fused-sticks, zinc chloride.

Powder—Squibbs, "heavy" zinc oxide. Modify the time of setting by adding a few drops of water to the solution. The more water added, the slower the setting and the softer the mass when set. Add a little yellow ochre to the powder if you wish to get away from a pure white color. Use what we call a "dump mix," that is put all the powder into the liquid at once; not as with oxyphosphate adding little at a time until stiff enough. Be sure the filling is set well before coming in contact with soft tissue of the cheek or tongue. I have never noticed any cauterizing effect if this rule is followed, but I have seen trouble on the cheek if the setting is too slow and is interfered with by saliva and then you get the action of the chloride, which makes a very sore mouth.
—Chas. E. Pearson, D.D.S.

GAGGING FROM WEARING DENTURE.—I had the patient take an effervescing bromide tablet dissolved in one-half glass of water, one hour before attempting the impression (patient being of a nervous type). Then I made a 4 per cent. novocain solution and had patient take a mouthful of same and work it back and forth for about five minutes. After this I was able to take a plaster impression without the least trouble. In putting in the trial plate, I again had to resort to the novocain mouth-wash, and also in fitting the denture, with perfect results. For about ten days the patient was more or less subject to gagging from wearing the denture, but every time this occurred patient would moisten the plate with a 2 per cent. novocain solution, which I had prescribed to use in case of gagging, and the result was that the denture was worn continually and the tissue adapted itself to the presence of the plate, and patient is now wearing same without any ill effect. In fitting the denture, care should be exercised that it is not extended further than one-sixteenth to one-eighth of an inch on to the soft palate, as this will cause gagging even in ordinary cases.—*Dental Digest.*



The Successful Man



HE successful man is he who by the greatest good gives the greatest happiness to the greatest number. He lifts to his feet a fallen friend or foe, and stops not to count the cost. He succors the needy, cheers the despondent, mourns with the bereaved, and rejoices with the light of heart. He prattles with infancy, counsels with youth, confers with middle age, and bends the ear to listen to the hallowed tales of later life. He scorns flattery, shuns notoriety, seeks only to find the good in human kind, and buries the bad when he sees it. He places himself in unison with the great throbbing heart of humanity, and holds himself not aloof from the poorest beggar of the streets.

He is akin to all mankind, and plants a flower in the garden of the poor where weeds and thistles otherwise would grow. He believes in one good act more than in a million sermons, and he chooses to *do* rather than to *say*. He cherishes the love of little children, and feeds on the affection of the lowly of heart. He turns darkness into day, and holds a light for the halting and the blind. He blazes the path for the timid traveller, and bends the branches for the weak to make their way.

The successful man is he who with heart tuned aright listens to the cry of his fellowman, and strives to replace it with the music of the spheres. He cares more for the caress of virtue than for the lure of vice, and walks clean with his face turned toward the light.

The successful man, whether he be pauper or millionaire, is the one who grips the hearts of his fellowman, and changes the furrowed brow of despair to the smile of happiness and hope.

Sometimes lacking in money, he always has wealth—wealth of friendship, of sympathy, and of affection. Little children toddle at his side, and the aged lean on him as a staff.

He mingles freely with the masses, and yet scorns not a man because he chances to have riches. He yields to every man the right to live and make good.

He censures not when a fellow pilgrim has done wrong—he seeks to find the cause. He knows that behind every act there is a reason, and he is more interested in the reason than in the act.

He tunes himself to the motives of men, and strives to change the motive when he finds that it is bad. He judges not till he knows all the facts, and realizing how difficult it is to learn the facts he withholds judgment oftener than he passes it.

The successful man is not the one who never makes mistakes—he boldly casts his lot with his erring fellowman, and accepts the buffets of fate with the same philosophy that he does the smiles of fortune. He sees the virtue of a shadow as well as the blessing of sunshine. He is one with all mankind, and human to the core—freely admitting his frailties, and thankful if only he may be right a reasonable part of the time.

He recognizes the joy of doing for others, and the emptiness of doing for oneself. He gives more than he takes and is made the richer thereby. Modest in his demeanor, his greatest solace comes from doing a kindly act and hiding it from the world. The blare of trumpets never appeals to him, and the unseen, unheard benison is his most acceptable reward.

The successful man is he who plays the game as he sees it, asking no odds, but granting favors when he can. His pathway is not all roses, but there are fewer thorns after he has passed that way. He brushes aside the briars and leaves the world a smoother, pleasanter place in which to walk and work.

The blessings of his life do not cease when he dies—the beneficence of his influence passes on to future generations through untold time, like the streak of light left by a shooting star.

Success is not difficult to achieve—it is merely to do good and be kind.

C. H. Johnson

True Progress



As the pendulum swings from side to side we are apt to be carried too far in one direction or the other by a worthy enthusiasm for the adoption of that which is newest and best in Dentistry. But we must learn to temper our enthusiasm with wisdom. True progress often lies in "learning as we go but not forgetting what we know."

Officers of Canadian Dental Organizations

*Oral Health will be Pleased to Receive Additions or Corrections that Directory
of Names May be Kept as Accurate as Possible*



CANADIAN DENTAL ASSOCIATION

President: Dr. Geo. K. Thomson, Halifax, N.S.
Secretary: Dr. J. Stanley Bagnall, 34 Larch St., Halifax, N.S.

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CANADIAN DENTAL HYGIENE COUNCIL

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Secretary: Dr. E. A. Grant, Toronto.

CANADIAN DENTAL RESEARCH FOUNDATION

President: Dr. R. Gordon McLean, Toronto.
Secretary: Dr. E. A. Grant, Toronto.

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N.S.

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Quebec

Dr. D. Forest, Registrar, Quebec Dental
Board, 187 de la Roche St., Montreal, Que.

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Dr. H. J. Merkeley, Registrar, 706 Somerset
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Saskatchewan

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Dental Association, Regina, Sask.

Alberta

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Dental Association, Calgary, Alta.

British Columbia

Dr. W. J. Lea, Registrar, College of Dental
Surgeons of B.C., Vancouver, B.C.

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Secretary: Dr. Fraser Allen, Vancouver, B.C.

Victoria Dental Society

President: Dr. Charles Harding.
Secretary:

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Secretary: Dr. C. H. Wellington.

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Manitoba Dental Association

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Secretary: Dr. J. F. Morrison, Winnipeg.

PROVINCIAL AND LOCAL DENTAL ASSOCIATIONS—Continued

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Secretary: Dr. Harry Smith, Ottawa.

Stratford Dental Society

President: Dr. D. R. Nethercott, Stratford.
Secretary: Dr. J. A. Boyd, Stratford.

Thunder Bay Dental Association]

President: Dr. F. A. Blatchford, Ft. William
Secretary: Dr. H. Quackenbush, Ft. William

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Secretary: Dr. F. A. Godsoe, St. John, N.B.

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Secretary: Dr. J. Stanley Bagnall, Halifax.

PRINCE EDWARD ISLAND

Prince Edward Island Dental Association—Secretary: Dr. J. S. Bagnall, Charlottetown.

The Canadian Dental Association and the Maritime Provinces

IN planning your summer vacation for 1926 don't forget that the meeting of the Canadian Dental Association will be held in Halifax and that the Maritime Provinces, including New Brunswick, Nova Scotia, and Prince Edward Island will co-operate in arranging a very attractive programme.

Although it is somewhat early to make any definite announcements with regard to the nature of the meeting, the matter of arranging for the attendance of prominent members of the International Dental Congress which meets in Philadelphia in August, 1926, is under consideration.

It is also rather early to arrange definite dates, but, if it should be held in August, either before or after the I.D.C., it will be possible to arrange your itinerary, so that it may include both the Halifax and Philadelphia meetings.

It is proposed to inform the members of the profession through the columns of the Dental Journals and otherwise, what progress the com-

mittees are making, and members are requested to forward suggestions as to dates, nature of programme, etc., to our Secretary as early as possible.

Your co-operation is needed and will be welcome.

GEORGE KERR THOMSON,
President of the C.D.A.

DR. J. STANLEY BAGNALL,
34 Larch Street, Halifax, N.S., Secretary.

International Dental Federation



N accordance with the decision taken at Luxemburg last year, the next meeting of the F.D.I. will take place in Geneva (Switzerland) from 2nd to 6th of August, 1925.

Among the subjects to deal with we may mention: the preparation of the organization of the International Dental Congress of Philadelphia in 1926, the proposition of Revision of rules and regulations of the F.D.I., discussion on the reports of Commissions. Sufficient time will be allowed to the different Commissions for their work and the Presidents of the same are hereby requested to kindly suggest to the Adjoint secretary the questions they wish to be mentioned on the agenda of Commissions.

Shortly summarized the programme of the session is temporarily established as follows:

Sunday, August 2nd, 8.30 p.m.—Reception by the local Committee.

Monday, August 3rd, morning—Open meeting.

Monday, August 3rd, afternoon—Executive Council.

Tuesday, August 4th, morning—Meeting of the Commissions.

Tuesday, August 4th, afternoon—Meeting of the Commissions.

Wednesday, August 5th, morning—Meeting of the Commissions.

Wednesday, August 5th, afternoon—Executive Council.

Wednesday, August 5th, evening—Banquet.

Thursday, August 6th, morning—Executive Council.

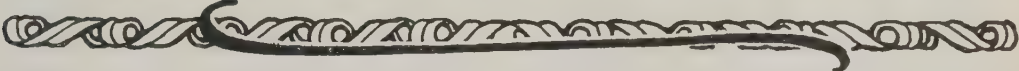
The present programme is but a *provisional* one, which may be substituted by a *definitive* programme, and we shall not omit to send you the same in due time.

The President,
TRUMAN BROPHY.

The General Secretary,
FLORESTAN AGUILAR.

The Adjoint Secretary,
G. VILLAIN,
45 Rue de la Tour d'Auvergne, PARIS.

Oral Health



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TORONTO, FEBRUARY, 1925

No. 2



EDITORIAL



The Royal College of Dental Surgeons of Ontario and the University of Toronto

DENTAL education in the Province of Ontario has been carried on for the past half century by the Dental Profession, through an elective Board of Directors. The Profession has always regarded the School of Dentistry of the R.C.D.S. as a public trust, and throughout the entire period of fifty years has carried the burden of dental education in the public interest, and in the spirit of trusteeship. During that period the balance of assets over liabilities has gradually increased until they amounted to almost half a million dollars at the close of the last session. This sum has been made up of Government grants, increased increment in real estate, and the balance of current receipts over expenditures.

For upwards of thirty-seven years, the R.C.D.S. has been affiliated

with the University of Toronto, and throughout that entire period the most friendly relations have existed. Year by year, there has grown up between the College and the University a mutual feeling of confidence and a spirit of cordial co-operation.

Negotiations for closer relations between the College and the University of Toronto have been proceeding intermittently for many years, having been opened as far back as 1905. But the difficulty has always been the inability of the University to assume financial responsibility for the teaching of Dentistry. Negotiations, however, received a decided impetus a few months ago, by the publicly expressed opinion of the Honorable the Prime Minister, that the Provincial Government was prepared to make additional grants to Dentistry through the regular University budget, and this has enabled the University to proceed with negotiations in the full assurance of Government support. Tentative proposals have been made as between the College, the University, and the Ontario Government, a copy of which is being forwarded to every member of the College, along with a ballot paper. Each member is asked to record his vote as being either in favor of or opposed to closer relations with the University upon the basis outlined.

All suggestions that have been made by the R.C.D.S. Board and by the members of the R.C.D.S. Committee have been accepted by the University, and the most cordial and friendly spirit has been manifest throughout the negotiations.

The following briefly is the basis of the proposed arrangement:

The Faculty of Dentistry to be composed of the present Faculty and to have the same privileges and prerogatives as have the other Faculties of the University.

Dental classes, so far as possible, to be instructed in the lecture rooms and laboratories of the Dental Building.

Co-operation between the R.C.D.S. Board and the University Faculty to be assured by: (a) three representatives of the Board to be appointed to the Faculty; and (b) one member of the Faculty to be appointed to the Board.

Four members of the Dental Faculty and two members of the Dental Profession to be elected to the Senate of the University.

The University to pay to the Board ten dollars each session for every student enrolled in the Faculty of Dentistry, to be credited by the Board in payment of fee for title of Licentiate of Dental Surgery. This will obviate the necessity for regular graduates of the Dental Faculty being required to pay an additional fee before being admitted to practice.

The University to conduct the examinations in Dentistry.

The R.C.D.S. to transfer land, building and equipment of the School of Dentistry to the University. The Board of Governors to be responsible for current liabilities and in addition the University agrees to the retention by the Board of an equity of \$50,000, so that it may adequately carry on its responsibilities to the profession in Ontario. Until such principal sum is paid, the University to pay to the Board annually the sum of \$2,500 as interest. Dental education and dental research to be sustained by the University.

During the past fifty years it has without doubt been to the advantage of dental education in Ontario to be controlled by the Royal College of Dental Surgeons; and the Dental Profession is to be congratulated upon the success and standing of the School of Dentistry and the great public service that has been rendered the Province by the College.

But what does the next fifty year period hold in store for Dentistry?

In view of the present scientific developments in Dentistry, and the probability of even greater developments in the future, can a University Faculty, with all of the resources of the Provincial University, give a more scientific course in Dentistry? Would dental students registered in a Faculty of the University feel free to take a more intimate part in the undergraduate activities of the University? Would they, upon graduation, realize that they are graduates of the University to a greater degree than at present? Will Dentistry in Ontario during the next fifty years secure more benefactions and public recognition by way of grants for dental research and education, if organized as a Faculty of the University? How can the status of Dentistry be further improved, the position of the practitioner rendered more secure in his own community, and a more complete contribution to national health welfare be made possible? These are vital questions, and ones that every Ontario graduate should answer.

Dentistry has won her place among the learned professions. She has developed strength in her self-reliance, and her scientific advances and public service have made her worthy of the recognition and support of the other professions. There may have been differences of opinion in the past regarding the advisability of the Dental Profession continuing the teaching function in the Province of Ontario, but we believe under the favorable terms agreed to by the University, and the decision of the Government to assist dental education through the regular University budget, the members of the Royal College of Dental Surgeons of Ontario will be favorable to the plan proposed.

Correspondence

THE OLD AND THE NEW.

To the Editor ORAL HEALTH:



As a new young dental practitioner, I would like to commend Dr. C. N. Johnson's letter in the January issue of *ORAL HEALTH*, and as one of the "rank and file" tell what the average young man is pitted against to-day in practice.

Men in general business and in the professions, seem to feel that we are just about to embark on a wonderful era of development. To the "plodder in the ranks" this may not mean as much as it should. Dr. Johnson points out that if only a few rise above as leaders and the plodder fails to follow,—wherein is the advantage? He says the future of the profession lies with the new men, and that the elder men in the profession should welcome the new men to their ranks, and so joining hands enter into a better day by forming a rainbow of great promise.

I judge nothing is more desired by the new men than this,—but like most ideals it appears to be a hard one to make come true. Maybe this is not so true of the cities as of the smaller centres, where new men may go, and occasionally do not find the glad hand of the elder men extended to them. There are many reasons for this seeming lack of sympathy. The elder man graduated many years ago with small outlay. His equipment cost only a fraction of similar office equipment to-day. He may not have taken the time to keep properly informed, through dental conventions and courses. His practice is established and his spare time is devoted to his home and to social, athletic, or some other form of side interest. He may, quite unconsciously, look on the new man and wish he had not come to town. Once the new man makes a place for himself, feeling toward him is more satisfactory, but there may still remain a latent fear that the new man may possibly be better trained and more skilful or adaptable, and may draw upon the elder man's practice.

At first the young man finds his financial burdens rather heavy, and in order to meet these he must increase his income, by more work, more patients, and possibly, higher fees. He may find that some work will pass his door if his fees are high. So he must face the problem of continuing to do his work as he believes it should be done, and possibly at a loss, or be tempted to revert to other methods that may conceivably be in vogue in his new location, in order to successfully compete. Education of patients is slow, costly, and to be desired; but people may hesitate to trust the new man.

The established elder man has funds to buy supplies in quantities at low rates, and is able to keep a stock to meet his needs. The new man would greatly handicap himself with the cost of similar supplies in quantity, and by the purchase of useless supplies. In fact, it seems to me that the average new man must be a very good buyer, and a sparing spender of funds, if he is to break even, or better, during the first year in a new practice in Ontario, be it in town or city.

Fundamentally and in practice dentistry is a profession, but it is also a business out of which the dentist should pay himself a living wage, and this is the new man's problem. No man is going to be content in the practice of dentistry unless it affords him a respectable living wage.

Personally, I was glad to be at the Ontario Convention of six hundred last year. And I was glad to see so many elder men there and to hear what they had to say. They know better than the new men what clinical conditions present from year to year; they know dental practice. But I found that the young men knew their physiology, pathology and histology better. This is one more reason why such great results follow close co-operation between "the old and the new."

Hart House will prove a unique location for the Convention, and being close to the College, is a very wise choice.

It is a fine thing to see a Provincial Director of Dental Services appointed, and it is to be hoped that towns having no provision for a dental survey will become centres of investigation, and that qualified dentists will be enabled to make the dental examinations instead of school or health nurses. Let us hope also, that where necessary, clinics for the poor will be opened by local organizations, and so maintain more complete community health activities. It may be found that some dentists may not strongly support a dental survey at first in some small centres; but where the work is thoroughly and efficiently done, it cannot fail to result in an improvement of the child life, and ultimately be endorsed by every progressive dentist. There is great hesitancy on the part of local men to start public campaigns to create community dental services. Somehow or other it seems easier for a stranger to do the pioneer work and shoulder the responsibility of starting things.

With Dr. C. N. Johnson I hope that the dental profession, one and all, old and young, may experience a healthy unrest, and get out of the routine rut and take more interest in dental societies which richly merit support and well repay the time and money invested.

So let us all progress!

HAROLD D. MORRIS.

Orillia, Ont., February 11th, 1925.

To the Editor, ORAL HEALTH:



S the result of a statement that I made at the last Ontario Dental Convention I have been asked a number of questions regarding the condition of primitive skulls that I have examined.

I have a report from the Museum at Ottawa, describing minutely all of the Esquimaux skulls in that Institution; anyone can receive it by writing to the Department for it. It contains a very fine article by Dr. Ritchie, B.A., D.M.D., L.D.S., who was commissioned by the Government to make a report. In this article he says "Salivary calculus even in the oldest skulls, with one exception, which will be referred to later, is entirely absent, as is also any trace of pyorrhea, or absorption of the alveolar margins. These latter, however, are thicker than those of civilized races, and the blood supply is abundant."

With regard to the Redpath Institute in Montreal, there is only one Esquimaux skull there and the alveolar process of the maxilla is in a splendid state of preservation. The alveolar process of the mandible shows evidence of being weather worn, and Dr. D. J. Ferguson, the dental surgeon, who examined it, would not express an opinion as to the condition of the alveolus before death, although the indications are that it was all right.

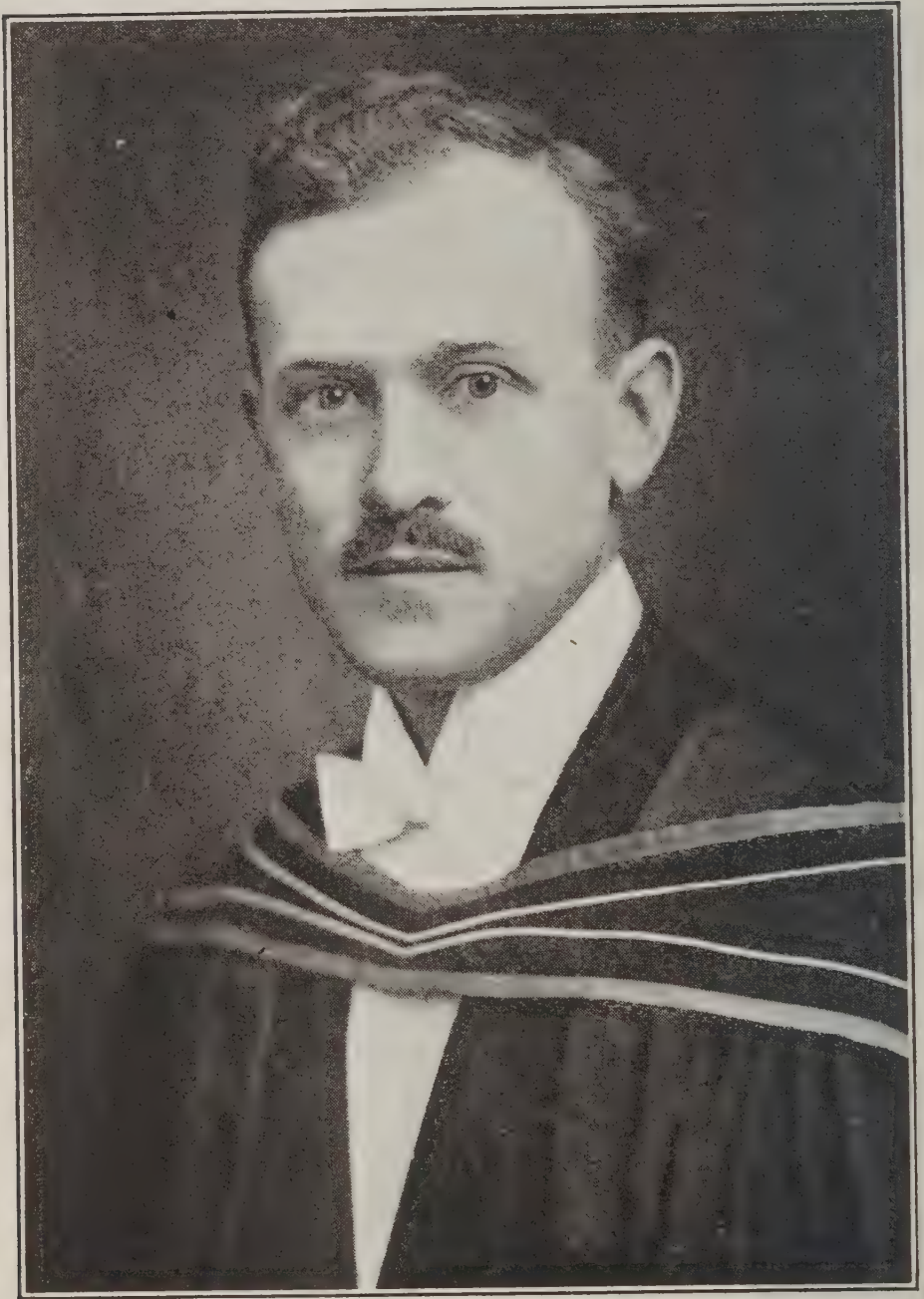
My observations of the skulls of primitive Indians, not those of modern habits of civilization, will bear favorable comparison with the Esquimaux. Their bones, however, are not so thick and the blood supply would probably not be so great as a rule. I have personally examined all the skulls open for examination in the Ottawa Museum, in the Redpath Museum in Montreal, in the Museum in New York, the Smithsonian Institute in Washington, and all the skulls open to me for examination in London, England, and some of the skulls in Philadelphia, and have been surprised to find a great number of different races living primitive lives who have splendidly formed jaws and the alveolar process of both jaws well preserved.

ANDREW J. McDONAGH.

TO RELEASE AN IMPRESSION.—Tell the patient to close the lips and blow the cheeks out. It is advisable to have the patient give a trial blow with an empty tray.—*British Journal of Dental Science*.

MOULDING SAND.—Moisten moulding sand with lard oil or sperm oil in place of water.—*Dental Science Journal of Australia*.

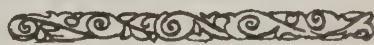
“He has not served who gathers gold,
Nor has he served whose life is told
In selfish battles he has won,
Or deeds of skill that he has done;
But he has served who now and then
Has helped along his fellow men.”



HAROLD KEITH BOX, D.D.S., PH.D., F.A.A.P. ✓

ORAL HEALTH

A JOURNAL THAT STANDS FOR THE OUNCE OF
PREVENTION AS WELL AS THE POUND OF CURE



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Harold Keith Box : A Personal Sketch

BY JAMES GREGORY O'NEILL, D.D.S., Windsor, Ont. ✓

Dr. O'Neill has had the privilege of intimate personal association with the subject of this sketch for many weeks in office, class-room, and laboratory, and desired to record his personal admiration and regard for Dr. Box, and the scientific work he has accomplished in Pathology.

* * *



GARELTON PLACE claims his birthplace; but it was not destined to hold him long within her bosom. White Lake, a historic little village in the Upper Ottawa Valley, saw him grow from infancy to boyhood. This is in a hard rock country of natural beauty and enduring quiet. The pioneers were sturdy in brain and brawn, and in their youth blazed the trails in this primitive settlement. These early builders endured many hardships; but they were in some degree compensated by the fact that they were close to nature, and breathed deeply and long of the invigorating ozone wafted through the pines. The lake is hard by the little village, with its shores banked by an abundance of tamarac, spruce and other like trees. In the summer time these wooded banks, with their variegated colors of foliage, throw off brilliant color schemes at every hour of the day.

Not once or twice in this historic township did Chief MacNab speak the word of the law, and his subjects bend before him as did his soldiers before Napoleon. This was his kingdom and he was a law unto himself. The home of "The MacNab" still stands in the village where Harold Keith Box grew to boyhood, and is now the property of his aunt. "The MacNab" was an autocrat, and by many of the first settlers of this district he was looked upon as a tyrant; but with all his

faults, he was a strong character and he has left the imprint of his qualities in the characters of those who now dwell in the haunts that were so familiar to him. What more fitting place could Providence have selected than this for the early years of our young scientist?

Scientific enquirers and research workers are born, not made. The Creator in His wisdom selected a place for him to grow where his very environment gave him the ingenious and inventive imagination that he possesses. The seeds of the acute powers of observation, which are so strongly manifested in him, must have been sown when he roamed through the pines and the tamaracs. One who has lived close to nature in the formative period cannot escape being observant. A forester must observe, otherwise he would be lost.

Modesty is an attribute that cannot be too much cultivated. A mind that has a penchant for digging up scientific truths is, generally speaking, associated with a modest character. Harold Keith Box has this attribute in a proper proportion.

Perseverance is one of the most essential qualities that our men of science must possess. The Scottish, Irish and English blood in his veins came from men and women to whom perseverance meant life and its absence death. The truest exemplification of perseverance is exhibited in the struggles of our early pioneers.

Natural qualities alone do not make scientists; they form the foundation, which must be augmented by severe training. Harold Keith Box has carried on intensive study for years. A fellowship was granted to him by the Royal College of Dental Surgeons, and later he was awarded the degree of Doctor of Philosophy from the University of Toronto. It is necessary to select a major subject and write a thesis for this degree. His election for a major was Pathology, and his thesis was entitled "Dental Tissues," a part of which has been included in "Studies in Periodontal Pathology," being Bulletin Number Seven of the Canadian Dental Research Foundation, which is a classic in its English and its portrayal of microscopy and pathology.

One may train the eye without much exerting the brain: but to be successful in scientific research one must have the right training of the brain, and make the eye subservient to it. This means that a broad scientific education is required; and, in addition, a research worker to accomplish results must possess intelligence, the faculty of concentrated effort and good judgment.

Methods are very important in digging for scientific knowledge, and without proper methods little could be mastered. Concentration, so far as it is not a natural gift, is intensely hard to cultivate and to command. Yet how essential and all important it is for the student of science to concentrate on his work. Concentrated effort of a half hour, or even of

days and months and even years is not enough. Sound judgment is one of the strong attributes of the successful scientist. One can collect data, but to formulate and express and draw correct inferences in an intelligible and interesting form is quite another matter.

There are so many of us in the profession of Dentistry who are parasitic, like sponges, constantly taking and never giving, and who rarely stop to think of the pleasures, the recreation, and the most cherished of all—the family life—that the scientific digger for truth's sake gives up, so that he may better serve humanity. Money cannot purchase the genius for research. A man rarely stumbles upon anything original, but rather he works his ideas through many phases, and at all times is guided by essential underlying principles.

The true scientist may work on for years without giving his findings to the world. It is not because he does not wish to, but that he cannot do two things at the same time. Research work is one thing and giving it to the world is quite another. Not all of Harold Keith Box's research findings have yet been published; but everything he finds of value to the profession will come in due course of time. He loves his microscope like the great musicians love the musical instruments of their choice. To gaze through a microscope for three hours is a great pleasure; but to take a pen in his hand for two minutes seems an effort.

He is only in his early thirties and at the present time is working with an enthusiasm that is infectious and is only excelled by a mental energy that is almost too much for his physical constitution.

Words are only the expression of thoughts. Some force brings these thoughts to life, and every one of them is relevant to that force. Harold Keith Box has been the inspiration and the force through which every word in this article has been written. May he long be spared to carry on the work he is doing! We sincerely feel that many and greater things will come from his future efforts in the field of science.

SPACE MAINTENANCE TECHNIQUE.—To maintain space after the extraction or loss of teeth, the construction of bands of gold, silver, or nickle, or any orthodontic banding material may be used. For the bar to hold the space, orthodontic wire or round tubing may be used. The band is fitted to the tooth and the bar of correct length is soldered to band and cemented to tooth, the face end of the bar to fit against the tooth to be kept in position. Instead of bands properly made shell crowns may be used on deciduous teeth. A crown will aid in the longer retention of the appliance. If the bar is bent toward the gum tissue by mastication, it may be bent back by a pair of pliers.—K. A. C.

Tooth Form and Function*

BY MAX GIESECKE, D.D.S., GLENWOOD SPRINGS, COLO. ✓



THE slogan for this meeting is "PREVENTIVE DENTISTRY," thus including those branches of dentistry which tend to remove the cause of disease in the mouth and so promote the health of the entire body. The first step in this direction is the proper feeding of the mother as well as of the infant. Then the teeth must be observed individually and collectively at regular intervals to see that their proper function is maintained. It is the object of this paper to point out the important features of tooth form and its relation to function and periodontal health. If our teeth were normally formed, normally occluded, and given a chance to function normally, there would be little need for dental services. Such conditions very rarely, if ever, exist, so it behooves us to use every effort and opportunity to better the conditions we find in the mouth.

Through the ages Nature has striven to improve upon her work, making countless changes to develop the present-day fauna, each type differing from the other and being adapted to its environment. Thus, too, the teeth have been developed from the ossified dermal plates and small cone-shaped teeth found in the mouths of the Silurian and Devonian fishes to the highly specialized types of the Herbivora, Carnivora and Omnivora. The first function of teeth was probably prehension, and this is still the only function in some fish and reptiles, though this is of the least importance in man. Some fishes and reptiles have teeth supplied in endless succession; when one is lost another rises to take its place. Others have heavy "nut cracker" jaws of hard bony material with which to crack the shells of mollusks and crustaceans upon which they feed.

In the Herbivora, the beaver (a rodent) furnishes a good example of highly specialized teeth. The central incisors are long, curved teeth which grow from persistent pulps. They have a heavier, denser plate of enamel on the labial surface than on the lingual, so that in use the lingual portion wears faster than the labial, producing a sharp, chisel-like edge with which to cut the trees and shrubs from which the beaver gets food and material for dams. Continuous growth preserves the length of the tooth and so insures the perfect functioning of the cutting edge. The elephant also has developed specialized incisors.

* Read before the Colorado State Dental Association, Glenwood Springs, Colo., June 20th, 1924.

The upper incisors, which serve as formidable weapons of offence and defence, are long, pointed tusks of dentine with very little, if any, covering of enamel. The four or eight remaining molars have broad, flat surfaces with alternate folds of enamel, dentine and cementum. Through wear this unequal density produces a roughened surface which is exceptionally well adapted for grinding. This is the type of tooth found in the molars of all Herbivora. The temporo-mandibular articulation is open, allowing extreme lateral movement.

In the Carnivora the jaws are limited to vertical movements and the teeth consist largely of points and blades well adapted to prehension and crushing. Just occlusally to the gingiva the soft tissues are protected by a prominence which deflects the particles of bone, etc., in the food as it passes from the tooth surface, striking the soft tissues at a tangent. Here we have the cuspids developed to serve as a more efficient weapon in battle, as well as in prehension of food. A striking example of this type of specialization was found in the sabre-toothed tiger which is now extinct.

It is, of course, the Omnivorous type of tooth that concerns dentists, and here the food is the greater factor in determining the type of jaw and teeth. The consumption of both animal and vegetable food must be provided for. This requires a mechanism allowing for all the various movements of the jaws during mastication. The teeth must be adapted to function in these different movements, which are classified as follows: (1) Prehension, (2) Incision, (3) Crushing, and (4) Trituration or grinding. In prehension and in the first part of incision the teeth meet incisally, grasping a portion of the food and, when the hands pull the food away, placing a strain upon the crowns and incisor teeth, giving them a labial inclination. This prehensile type of jaw is not often found in the more civilized races, but is still quite common in the more primitive people unfamiliar with the use of knife and fork. The second part of incision is a scissors-like action during which the lower incisors and jaw are drawn upward and backward. This function has also been largely eliminated by the use of the knife and fork, and is perhaps now used only in eating raw fruits. Crushing is performed by a strong vertical pressure of the lower posterior teeth against the uppers. This is a very beneficial action, in that it has a tendency to expansion and also stimulates the deeper structures which form the attachment and support of the teeth. Trituration is a movement of the mandible from without inward. It is the prevailing movement used by civilized man to-day but unfortunately has a tendency to contract rather than expand the arch. (Pickerill).

THE MOUTH AS A WHOLE.

Arrangement of the Teeth. The teeth of the maxilla are arranged in the form of a semi-ellipse. The incisal edges of the six anterior teeth form a continuous curve which is extended along the buccal cusps of the bicuspid and molars in a more or less straight line to the distal of the third molar. The aggregate mesio-distal diameter of these teeth is slightly greater than the lowers, so we find the upper third molars projecting distally to the lower thirds. In the mandible we have a similar but slightly smaller curve or arch which allows the buccal cusps of the lowers to occlude lingually to the buccal cusps of the uppers, into the sulci formed by the buccal and lingual cusps. The anterior teeth also occlude lingually to the upper, and in this way the cheeks and tongue are protected in the act of biting by being held away from the actual occlusal contact and thereby preventing a pinching or crushing.

Inclination of the Teeth. The long axes of the upper posterior teeth have a buccal with a slight mesial inclination, and the anterior teeth are tipped mesially and labially. In the lowers the anteriors have the same inclination, perhaps slightly less, while the posterior teeth are tipped mesially and lingually.

CONTACTS AND EMBRASURES.

All teeth have a greater mesio-distal measurement near the occlusal surfaces than at their necks. In this way they have a contact with the adjoining teeth near the occlusal surface, which offers considerable approximal support through the action of the transeptal fibres. These points of contact are found along the incisal edge of the anterior teeth and along the buccal cusps of the bicuspid and molars, producing the buccal and lingual embrasures. The latter are usually the larger, although sometimes the molar contacts are found further lingually, in which case the lingual embrasure may not be much larger than the buccal. The function of the contact is to prevent food from being forced against the septal tissue, and the embrasures are to allow the excursion of food to clean well into the approximal spaces while passing into the buccal and oral cavities, where it is forced back between the occluding teeth by the action of the cheek and tongue.

THE INTERPROXIMAL OR SEPTAL SPACE.

The mesio-distal contacts of the teeth leave V-shaped spaces between the teeth, with the base on the alveolar process known as interproximal or septal spaces, large in the molar region and narrower in

the incisal region. These spaces are normally filled by the septal tissue and should be maintained in order to insure a good circulation of blood for these tissues.

HEIGHT OF CONTOUR (*Friesell*).

This is a bulge of protuberance found on the axial surface of a tooth, and may be represented by a line, each point of which is that farthest removed from the centre or long axis of the tooth. It is the dividing line between the clean and the unclean surface of the tooth. The occlusal portion receives the scouring action of the food in mastication, and is therefore relatively immune to caries. The gingival or protected portion is a susceptible area. The function of the height of contour is to deflect the food from the crest of the marginal gingiva and have it strike the body of the gingiva at a tangent, preventing injury to this important tissue.

OCCLUSAL CONSTRICTION AND MARGINAL RIDGES.

The portion of tooth between this height of contour and the occlusal surface of bicuspid and molars is known as the occlusal constriction, and its function is to lessen the resistance of the tooth in erupting and also in entering food. This should be carefully considered in making restorations of all kinds.

Where the occlusal constriction meets the occlusal surface, we have the marginal ridge. Mesially and distally its function is to guide food away from the contact point upon the occlusal surface, and also to guide portions into embrasures, some even passing through the contacts. The occlusal surface is bounded by the marginal ridges and is composed of cusps, sulci and fossae. Between these cusps, and forming outlets for the sulci and fossae, grooves are found which provide for the escapement of food into the embrasures and upon the buccal and lingual surfaces.

SOFT TISSUES.

Surrounding the necks of the teeth and a portion of the enamel, we find the gingiva, which also fills the interdental spaces. The function of this tissue is to protect the pericementum and the crest of the alveolar process from both infection and trauma. The cemental gingiva, which is attached to the neck of the tooth, also sends fibers to the marginal gingiva, which covers a portion of the enamel near the neck of the tooth but is not attached to it. This tissue terminates in a very thin knife-like edge, which in turn has to be protected from trauma by the contour and position of the teeth. This is accomplished by diverting the food just past the crest of the gingiva and allowing it to strike the body of the gingiva at a tangent.

RESTORATIONS,—STUDY CASTS, STUDY WHOLE MOUTH.

When a tooth has been lost in whole or in part, it is desirable that it be restored promptly, before any further damage is done, and in order to prevent still more impairment of function of the remaining teeth and also lateral drifting and elongation. To bring about a satisfactory restoration it is essential that the dentist have a thorough conception of anatomical tooth form and that he apply this knowledge. Good judgment, of course, should be exercised. The existing conditions in the mouth should be noted and the operator governed accordingly. It is good practice in restoring a tooth to note the corresponding tooth on the opposite side of the jaw, unless it has also been destroyed or mutilated. It would be ridiculous to carve cusps such as would be found in the tooth of a child of twelve for an adult of sixty whose cusps show considerable wear. A good guide for locating marginal ridges may be obtained by marking with a soft pencil the tooth just mesially or distally (or both) to the one being operated upon, which will reduce the tendency to over-occlude. The filling should be carefully checked for any lateral or occlusal strain and the patient should not be dismissed until he is sure that a normal occlusal relation has been established with the opposing teeth. Too frequently patients are dismissed while still conscious of pressure and told: "Oh, that'll wear down all right after you have used it a while." But it does not always do so. Gold is malleable and will flow under occlusal stress. The strain will continue, and many times an irritation is produced which may cause pulpitis. Usually Pericementoclasia is the result, often with deep pocket formation.

Therefore, a restoration should restore the original anatomical form as nearly as possible, and the occlusion with the opposing teeth, as well as the mesio-distal relation with the adjoining teeth, should be maintained. They should be mechanically efficient, not only for mastication but in the protection of the periodontal tissues.

IMPROPER DIET.—In commenting upon the inferior physique of the young man of the present day in this country, as compared with a hundred years ago, the *Medical Press and Circular* suggests that one cause at any rate may be looked for in altered diet. Under-developed jaws and carious teeth, produced to a great extent by want of proper food, must have their effect upon the physique of the individual and of the race.

We must never allow ourselves to get tired of preaching this gospel. Teeth are given to man chiefly for the purpose of mastication, and unless they are given reasonable work to do, harm may inevitably result.

Dentistry in Czecho-Slovakia

EMIL SCHULZ, M.D., D.D.S., ✓

Prague, Czecho-Slovakia.

[*Doctor Schulz is visiting America as a representative of the Academy of Science and Art of Prague, and as a delegate of the Czecho-Slovakian Dental Association, to study dental education on this Continent, and while in Toronto taking a short Post-Graduate Course with Dr. Cummer, at the Royal College of Dental Surgeons, prepared this article for publication in ORAL HEALTH. Dr. Schulz outlines the present plan of education for Dentists in his country, including five years of Medicine and two years of Dentistry, and states that he will appreciate suggestions from members of the profession on this side as to the advisability of such a course.—Editor.*]

* * *



STUDY-TOUR through Canada and the United States gives a very interesting opportunity to compare the conditions in dentistry of Europe and America. A comparison will be very favorable for America, because it continued to progress during the war, whereas Europe stagnated. Therefore, it is not surprising that many of the European countries look upon America as a country of classic dentistry and send their men there to study the latest developments.

Dentistry in Europe developed on another basis to that in America. It was more closely connected with medicine, being regarded as a specialty of medicine. It is interesting to note that where it was only an appendix to medicine, it did not develop so rapidly as in countries where separate dental schools were established. Germany has been making quick progress since instituting dental schools, while Austria, teaching dentistry only in medical departments of the universities, as a specialty of medicine, has advanced but little.

The writer will give a review of dental education in former Austria in order to explain the situation which faced the dental profession in Czecho-Slovakia after the war. In Austria dentistry was taught in very few hours per week during two semesters as a compulsory part of the medical course. The subjects comprised Operative Dentistry and Exodontia, in order to enable prospective physicians to practise these phases of the healing art. It can be readily understood that in this short time, only some fundamentals could be given, and that such teaching could not be compared with regular dental courses in other countries. As every physician was allowed to practise dentistry, there were very different classes of physicians engaged in this profession. Some

devoted a little time of their medical practice to operative work and exodontia; others practised dentistry only after having received further special training from more advanced practitioners; and lastly, physicians who had spent time in foreign countries in Europe or America studying dentistry as a separate profession. In addition to physicians, dental mechanics were also practising dentistry in Austria. They were permitted only to supply artificial restorations, but not to administer medical treatment or perform surgical operations in the mouth, but in spite of this law, they engaged in all phases of dental practice. The mechanics had no technical schools and no text-books, their knowledge being based solely upon instruction either from physicians or the dental mechanics who employed them in the laboratories. As shown, the average standard of dentistry was not very high.

There were a few able men in the profession who endeavored to keep pace with world dental education, but, in general, the advance of dentistry, because of these unfavorable conditions, was not satisfactory.

As we have already mentioned, dentistry was taught only in dental clinics of medical departments. In the north-western part of Austria, which is now called the Czecho-Slovak Republic, were only two State Dental Clinics, one Czech and the other German, both departments of universities situated in Prague. The Austrian government did not support these clinics satisfactorily, the equipment being obsolete and the teaching staff was without the necessary financial resources for improvement.

In spite of the high taxes which this most industrial section—containing about 60 per cent. of the industry of Austria—paid to the government, the educational possibilities given to this section were not in proportion to those of the German and Hungarian. The Austrian government was more favorable to the German and Hungarian nations, and did not afford the other nations the same opportunities for development, education, politics or culture. The government did not support the different sections of the monarchy in proportion to the taxes paid, but used most of the revenue to assist other favored sections. Therefore, the educational facilities were much superior for the Germans and Hungarians than for the Slavs, Italians or Rumanians, who were subjects of the Austrian Monarchy. The best equipped and supported Dental Clinics were found in the German and Hungarian-speaking parts. It was always the result of parliamentary pressure that the Austrian government was compelled to assist schools of other nationalities.

HISTORY OF THE STATE.

In the sixth century, the Bohemians who, with the Moravians, Silesians and Slovaks, formed the vanguard of the Slavs in Europe, settled

in the very heart of Europe. They are a branch of the great Slav race, consisting of Czechs, Polish, Russian, Serbian, Croatian and Slovenian (Yougo-Slavs), aggregating about 150 million people.

The Czechs form a cultural unit with Slovaks, having the same language but differing in dialect, as a result of being politically separated during ten centuries. Surrounded by Germans and Hungarians, this nation had to struggle for its existence, beginning with the ninth century, when the German missionaries endeavored to convert this pagan country to Christianity.

In the 14th century, under Charles IV., the whole Holy Roman Empire was governed from Prague, and at this time the University of Prague became an intellectual centre, not only of Bohemia, but also of Germany, Hungary, and Poland, being one of the oldest European Universities.

The struggle for Protestantism led to the Hussite War which turned into a successful national war against the Germans. This was the last big event in the history of this nation. In the sixteenth century, the Hapsburgs were chosen for the throne, and they introduced Jesuits into the country. Terrible persecution of the Protestants took place, and this led to revolution, which resulted in bloody defeat of the nation at the battlefield of White Mountain, in 1620, and annihilated their freedom for 300 years. The national literature was the only means of preventing the language from being replaced by German.

Not forgetting their prior independence, the Czechs and Slovaks were prepared to use every opportunity to restore their freedom from the Austrian supremacy. The revolution in 1848 in Prague was defeated by Austrian troops, but the Great War signalized the long-expected opening. From 1914, the intellectual leaders stood at the side of the Allies, and the President of to-day, Dr. Masaryk, organized the outside Czecho-Slovak Government in Paris, supported financially by the Czechs and Slovaks living in America.

After being recognized as an independent and allied government in 1917, there was organized a Czecho-Slovak army in France, Russia, England, Italy and United States. In Russia alone were 80,000 Czecho-Slovaks blocking the Great Trans-Siberian Railroad and the Bolsheviks till 1920.

AFTER THE WAR.

In October, 1918, before the end of the War, the independence of the Czechs was proclaimed and the Austrian Government forced by revolutionary movement to transfer all activities to the new government.

The first improvement was the separation of the currency from that of the Austrian neighbors, and in three years, by successful financial

operations, the value was raised 300 per cent. Politically important was the formation of the Little Entente with Yougo-Slovia and Rumania, which averted a war threatening from the Hungarians in 1920.

The peaceful work resulted in the advancement of education—two new universities and many professional and public schools were founded, of which there had been only 3,000 in Slovakia. The communication and industry improved, and to-day, Czecho-Slovakia is regarded as one of the best organized and recovered countries in Middle Europe.

DENTISTRY AFTER THE WAR.

The new State, facing the unsatisfactory conditions in education, and especially in dentistry, put forth great effort to raise the standing of dentistry at the close of the war.

Dental clinics were carried on in the two State Universities, and leading men of the profession proceeded to elevate the standards in dentistry.

The Minister of Public Health passed a new dental law in 1920, under which only physicians were allowed to practise dentistry, and those physicians who wish to practise dentistry must take a course in a state dental institute. The mechanics were strictly forbidden in the future to practise dentistry and limited to laboratory work only.

This important step was followed by an intensive effort by the dental clinic in Prague to train an efficient teaching staff, and assistants were sent out to study the profession and teaching systems in foreign countries.

The same act of 1920 made provision for founding the State Dental Institute for training physician-dentists and a large fund was secured for this purpose by the Government.

This Institute will be built next year and will be under the charge and direction of Prof. Dr. Jan Jesenky, President of the State Dental Clinic of the Charles University in Prague. He is planning to teach in the new clinic the now existing knowledge of dentistry, especially as taught in the American institutions, which, in Czecho-Slovakia, are recognized as the highest in the world of dental education.

The course of instruction will cover two years. The course of study, after completing the medical curriculum and graduating in the medical department, will be devoted only to special subjects in dental practice and in developing the closest relationship between dentistry and medicine. The subjects taught will be Dental Anatomy, Histology, Bacteriology, Pathology, Therapeutics, Technology, Metallurgy, Hygiene and English, which will complete the theoretical studies in the medical department and equip the physician to pursue the study of dentistry.

Dental practice will consist of Clinics, Lectures, and Laboratory

work in Operative Dentistry, Oral Surgery, Prosthodontia, Crown and Bridgework, Orthodontia, Roentgenology and Preventive Dentistry.

Hospital beds and infirmary will be provided for the school, so that all treatments of the head, jaws and teeth can be performed.

The course of study will be eight years high school (called "Gymnasium"), five years medicine and two years dentistry. No dentist will be permitted to practise dentistry as a specialist without having completed this compulsory course of study.

This type of combination of medicine and dentistry is new in dental education, and it is a question as to how this plan will stand up in practice.

WILL THIS PLAN BE A SUCCESS?

The writer discussed this plan with many experts and heard different opinions. One group thinks that the greater knowledge of medical subjects will give better mental training and result in a higher type of dentist. Another group claims that it is difficult to acquire sufficient technical skill and manual dexterity when the mechanical training in dentistry is commenced after the completion of the medical course. A further objection is that two years' dental training will not be sufficient to develop a good type of dentist. Against extending the course over two years is the economical standpoint of it being too costly, which would result in dental service being too expensive.

In presenting this study-plan to the profession, the writer thinks that valuable suggestions could be made from many men interested in dental education, and especially just at this time when the interest of the dental teachers in America is focussed on the construction of the best study-plan for developing a higher type of dentist.

The Fee Question

“T'S a strange thing,” says Snaith in *Doctor and Patience*, “but contrary to all public opinion, the successful doctor nowadays is the one who runs his practice in a business-like way. People are willing to pay good money for services rendered, but they want their money's worth. I hate the doctor who demands his fee before doing a serious operation, for it brings his work down to a mercenary basis and people lose their respect for such men in the long run. But when you have done your work, you are entitled to your money and make up your mind to get it. As a rule, the patient who hasn't paid you after a considerable length of time, won't come back until he does pay you.”

Oral Hygiene Committee of the Ontario Dental Association



THE Oral Hygiene Committee of the Ontario Dental Association issues the following appeal to the dentists of the Province of Ontario:

February 11th, 1925.

DEAR DOCTOR:

As you doubtless read in the Public Press, the Hon. Dr. Forbes Godfrey, the Minister of Health, has appointed Dr. Conboy to the position of Director of Dental Services for Ontario.

At a meeting of the Oral Hygiene Committee, it was unanimously decided to assist the Provincial Government, through the new department, to undertake a dental examination of the boys and girls of the Province. This survey will result in many benefits, but the most valuable results will be:

- (1) The parents will be informed in regard to the defects in the children's teeth, and statistics show that in about forty per cent. of the cases the children will be sent to the family dentist to have the necessary work done.
- (2) Municipalities will be made cognizant of the great magnitude and importance of the problem, and will be encouraged to establish a school dental service to take care of the remainder.
- (3) The general public, through the educational campaign connected with the survey, will be so educated, that they will take better care of their teeth.

The following is an outline of the work which we hope to undertake:

- (1) Make a dental examination of all school children, and endeavor to organize a school dental service in each municipality.
- (2) Establish a dental department in connection with each hospital.
- (3) Supply an itinerant dental service and clinic in outlying districts.
- (4) Carry on a general educational campaign, paying special attention to workers in factories.

If you are willing to assist in any, or all of these undertakings, or if you can supply helpful information, please communicate with Dr. Fred J. Conboy, Director of Dental Services, Spadina House, Toronto, and he will be delighted to accept your help.

The honor of the profession is involved, and we know we can rely upon the sympathetic co-operation and practical assistance of every dentist in Ontario.

The Trans-Canada Trip to the Canadian Dental Association Meeting in Vancouver

A SYMPOSIUM.

By DRs. C. A. KENNEDY, J. C. DEVITT, T. N. MCGILL, LORNE E. MACLACHLAN AND PERCY ST. C. SMITH.

(Continued from last issue.)

VANCOUVER TO SKAGWAY AND THE YUKON.



TARTING from Vancouver via C.P.R. steamer for Skagway, the traveller has before him one thousand miles of the most varied, interesting and magnificent scenery in the world.

For most of the trip the boat follows the route between the Island and the mainland, the channels varying in width from a few hundred feet to many miles at other places, with an interesting change to the open ocean at Queen Charlotte Sound.

On our first morning out, I remember a bright clear day, the splendid foliage of the islands and mainland so distinct, a perfectly calm surface on the water broken only by the passage of our boat and leaping salmon, that had a strong attraction for me as a lover of fishing. Later on the trip we had a good view of whale, playing porpoise and some seals.

The towns of Ketchikan, Wrangel and Juneau all seemed to be prospering; fishing, mining, lumbering, being the chief industries. The halibut and salmon fishing are on an exceptionally large scale.

Near Juneau in fine weather the boat makes a special trip to the Taku Glacier. The ice breaks off this glacier about 75 to 100 ft. thick and falls into the ocean. We saw the bergs, with their varied tints, from here a long way down the coast.

After about four days sailing we arrived at Skagway. Every traveller will find it most interesting to call at the Pullan House and hear Mrs. Pullan's history of the town, including events in the career of the famous Soapy Smith.

The trip from Skagway, Alaska, to Carcross in the Yukon, by railway in upholstered chairs and observation cars, climbing up the steep grades and looking down 1,000 feet or more on the trail that the gold diggers in '98 packed their kits over, made me appreciate the 1924 method of travelling here very much.

The view from Inspection Point, looking down the White Pass about twenty miles to an arm of the ocean with mountains and glaciers beyond, is conceded to be one of the finest in the world. At the summit of White Pass cameras were busy snapping a white post that designated the boundary line of Alaska and the Yukon.

Along the trail an odd grave marked the dropping-out place of some early pioneer. A town just over the summit on Lake Bennett, that originally had 10,000 inhabitants when the gold rush was at its height, has now but a few inhabitants,—houses completely furnished, locked up and deserted. This, owing to the diminishing gold, has occurred in different places.

The boat trip from Carcross down Lake Tagish and Taku, West Arm, past the famous Engineer gold mine just being developed again after long litigation, took us at the extreme point of our journey to the house of a Mr. Partridge, who grew the largest sweetpeas I ever saw, but around his garden he had a 10-ft. high log fence, topped with barbed wire, to keep out the bear and moose.

T. N. MCGILL, Toronto.

VANCOUVER TO VICTORIA, SEATTLE, PORTLAND.

The tourist from the East simply cannot afford to miss the Seattle and Portland trip, because of the wonders and beauty of that delightful Pacific Coast. Needless to say this was a most popular side-trip.

The eighty-three miles from the mainland to Victoria is a most delightful sail of a little over four hours, and the passage winding between the numerous Islands of the Straits of Juan De Fuca is one of ever-changing beauty.

The view from the steamer as she docks at the wharf in Victoria is one long to be remembered. The inner harbor extends, one might say, right into the very heart of the city. A couple of hundred yards to one side of the steamer is situated the stately and magnificent Empress Hotel, greenly clad for six storeys with the foliage of a most luxuriant vine and bordered at its base with an abundant bed of deepest purple. On the opposite side of the steamer stands out amid the trees and well-kept landscape the outline of the Parliament Buildings.

Victoria is a famous resort both for summer and winter, and owing to the characteristic beauty of its residences, parks, boulevards, public gardens and semi-tropical foliage, it has been called "a bit of England on the shores of the Pacific."

Its styles, customs and business are typically English. There is none of this hustle and bustle, hurly-burly rush in or around Victoria. Everything seems so quiet and peaceful, and one of the greatest con-

trasts may be obtained in the atmosphere of the large C.P.R. hotels in Victoria and Vancouver. Rest and comfort reign supreme at the Empress Hotel and, although filled and running to capacity, there is never present that ever constant noise and commotion common to our other large hotels.

Possibly the stellar attraction of Victoria is the famous and beautiful Butchart Gardens, located about fifteen miles from the city, on the Saanich Inlet. In no place in America can be found any more diversified gardens than these, for besides the sunken and rock gardens made from the excavations of Mr. R. T. Butchart's cement plant, there are acres of rose gardens, stretches of velvet lawns bordered with flowers of every conceivable description, and a Japanese or fancy garden. All credit is due to the enterprise and generosity of Mr. Butchart in maintaining the gardens and admitting visitors daily without charge. One of the most impressive sights, and one which might also convey an idea of the immensity of the garden, was a rose hedge over seventy yards long and ten feet high, and this was merely one small attraction in this "Garden of Paradise."

The Saanich Mountain Observatory, which boasts of the second largest telescope in the world, is also one of the centres of interest, and its sight commands one of the finest views of the Pacific Coast.

A number of our party took a sixty-mile motor drive out through the Malahat Mountains, and Shawinigan Lake, and so enticing was the beauty and attraction of that famous Victorian resort that one of the party had difficulty in persuading his wife to return with the rest.

Wild animal life is very abundant, and is so tame that at one point on the road on our return we noticed a very large sign requesting that motorists refrain from needlessly running down or injuring the wild animals. One of my chief regrets was that I did not stop to get a picture of this unique request.

The following day in one of the restaurants there (and there are some excellent ones there, too), I overheard the proprietor tell one of his patrons about a certain Dental group who had taken this Malahat drive, and one Torontonian was so generous and enthusiastic that he gave the driver a seven dollar tip. He really gave the driver that much extra, but I think he must have got it back later.

Our eighty-mile cruise on to Seattle was equally delightful and as we came into view of the city after night we beheld one of the most spectacular and dazzling sights, with the city ablaze with lights and signs of every size and description. Seattle is one of the most important cities on the Pacific. It is beautiful and progressive, and its inhabitants are most enthusiastic in imparting to tourists the wondrous advantages. It is

built on a series of hills which slope towards the harbor, and so steep are the inclines that cable cars are necessary.

The first impression of Seattle is that of a second New York, with its large piers in the harbor, the many large office and commercial buildings in the business district in the foreground, and towering above all the forty-two storey L. E. Smith Building,—the highest in America outside of the Woolworth Building in New York. Seattle is also a beautiful city of residences, parks, waterways and highways, and the best way to see Seattle is by taking both ways.

The University of Washington with its large campus and modern buildings is one of the outstanding centres of interest to the tourist. Its large stadium, capable of holding 35,000, was erected by the students out of an almost natural site.

Here we saw what was supposed to be the largest log cabin building in the world, and built entirely of wood, but when we reached Portland we were told that Portland claimed that honor, so take your choice. Another of Seattle's wonders is the large Lock connecting Puget Sound with Lake Washington, a body of fresh water twenty miles long and three miles wide. The Lock is capable of accommodating the largest steamers, and by passing through up into the fresh water of the Lake and remaining there for about thirty-six hours barnacles on the boats die and drop off, thus saving a great expenditure of time and money otherwise necessary for graving.

A private car took us on our night trip to Portland and we surely had a most obliging porter, so much so that after giving him his little dues, a number of our party found that he had already helped himself during the wee small hours of the morning. (This was practically the only loss recorded on the trip, except that Dr. Ed. Grant lost a perfectly good day in Seattle caddying for some of our most enthusiastic golfers.)

The most interesting trip to be made from Portland is over the world-famous Columbia River Highway (the old Oregon Trail), which is one of the greatest and most scenic drives on the Continent. Our congenial and gallant friend from Montevideo, Dr. T. E. Gallagher, describes it as "the drive of drives,—the drive par-excellence." However, Dr. Ed. Grant disagrees and firmly maintains that the hotels of Portland are by far the greatest attraction, especially on a hot day. Nevertheless, practically all the party took in at least a portion of this wonderful scenic drive, varying from seventy to one hundred and forty miles. The highway is of the most permanent type conceivable, and follows along the mountain slope as the range parallels and almost dips into the Columbia River below. It cost approximately \$48,000 per mile; all bridges and viaducts are of concrete and steel and no grades

exceed five per cent. and all curves have a radius of not less than two hundred feet. In many places the road is cut right out of the solid rock on the mountain side, not at its base but well up on its slope. At another place a daylight tunnel pierces the solid rock four hundred feet, with five huge arched openings, forming its hewn windows. This work was all done by prison labor. Along the drive are to be seen many picturesque waterfalls ranging from 200 feet high, tumbling down the mountain-side within a stone's throw of the road.

This was the most educational drive of all our travels, for en route we saw the fish hatcheries where salmon and brook-trout are artificially propagated by millions every year for distribution in the State of Oregon; fish wheels which catch the salmon, the cannery where they are prepared for our consumption; irrigated orchards, the fruit packing plant where the fruit is all size-graded by machinery; and the water flumes carrying the sawn lumber down the mountain side.

Our drive terminated at Hood River, the gateway to the Hood River Valley, famous for its apples. Fifty miles away stood Mt. Hood, 11,225 feet in height; and sixty miles north, Mt. Adams, with an equal elevation, rising white to the regions of perpetual snow, to mark the turning and crowning point of our Convention tour.

LORNE E. MACLACHLAN, Ottawa.

VANCOUVER TO TORONTO VIA C.P.R. AND N.N. Co.

We left Vancouver, Sunday morning, August 17th, via C.P.R., in a drizzling rain, the first wet day at the Coast since our arrival.

The railway officials supplied each one with a booklet, "Across Canada," which every Canadian should possess.

Our train followed the Fraser, the country being flat, fertile and prosperous looking; along the river were numerous salmon canneries and booms of logs. It is very beautiful around Yale and quite mountainous. The roofless observation cars which the company soon put on were much appreciated. Many of us with overcoats and goggles stayed out here most of the day. We soon entered the great Fraser Canyon, a wonderful sight with its rocky precipitous cliffs and gray muddy river. At North Bond Station boys sold us dozens of delicious B.C. apples. Not long after, our train crept along the Black Canyon of the Thompson River with its numerous high peaks and landslides. The formation here is black and devoid of trees and gives a weird and dismal impression.

In contrast, the pretty station park at Kamloops, with its choice flowers, was a welcome relief. We passed Field and soon entered the spiral tunnel, that famous piece of engineering skill, and then the Yoho Country. But it was nearly dark and we lost much of the wonders here. Our sleeper was put on a siding at Revelstoke and needless to say we had a good sleep. Dr. MacLachlan, who had charge of the return trip, had arranged a side trip on the Arrow Lakes. We left after breakfast, reaching Arrow Head in about one and a-half hours, and went aboard the Bomington, a comfortable old stern-wheeler. A most delightful sail of 150 miles, somewhat comparable to the Inside Passage (from Prince Rupert to Vancouver) brought us to West Robson late at night. A mountain shower came on and it was interesting to watch the captain make his landing with the aid of the ship's big searchlight. The country is sparsely settled and will probably be a chicken, fruit and dairy district. There were few landings; the big boat of light draught and stern-paddle-wheel made an interesting scene pushing her nose on shore, taking on a basket of fruit or letting off a passenger, and backing out again. When will we ever forget the evening in the upper back saloon, when we put on a wedding anniversary party for the Corrigans! We certainly had a most happy time coming and going, and good meals.

The return was equally enjoyable and we reached Revelstoke at 4 p.m. A walk was followed by a picnic up the mountain-side. The sunset over the town and valley and Mt. Begbie, with its glaciers, was very fine. Poor Dr. Ryan was the moving spirit of this jolly party, and his camp-fire with hot tea, bacon, beans, green corn, etc., will not soon be forgotten. Dr. and Mrs. Gordon McLean joined us here after a longer visit in Vancouver, and Mrs. A. M. Stevens of Revelstoke gave us a kindly send-off, by presenting each lady of the party with a lovely bouquet. Mt. McDonald and the great five mile double-track Connaught Tunnel were next passed through, and then Albert Canyon. The three-minute view of the roaring cataract, hundreds of feet below, was all too short. Then came the magnificent view of the Selkirk range, most of the peaks snow-capped.

Shortly after leaving Golden the train winds in to the famous Kicking Horse Canyon, a most inspiring sight. The marvellous pieces of engineering, the dark rugged mountains, the wild roaring river in the deep narrow gorge, all made a picture and gave one a feeling hard to describe. Nature's wild grandeur and man's ingenuity made a great impression.

We pulled into Lake Louise late at night, our sleeper being put on a side track, and next morning were up early, did a turn along the plat-

form, climbed into the gasoline-propelled cars and away up among the mountains to the Chateau. The snappy air made the robes most acceptable. Oh! what a thrill was our first glimpse of Lake Louise, that dainty beauty spot of the Rockies! The grate-fire was very welcome after our three-mile ride in the chilly air, and the superb view over Lake Louise, from the great dining-room windows, made our breakfast doubly enjoyable. The great glass ball on the terrace gives one interesting views of the surroundings, and the poppy-strewn lawn completes the setting of the place. The C.P.R. has certainly picked the choice spots along its line from Coast to Coast. After breakfast a motor drive to Lake Moraine and the Valley of the Ten Peaks to the Tower of Babel was a delightful experience. The tea room here with its collection of curios was most inviting. We regretted no time for tea and toast around the cosy fire.

In the afternoon a climb up the mountain path to Mirror Lake, and then on up to Lakes Agnes with its charming tea house, and on to the upper Bee Hive, was a wonderful experience. Some went on horseback and some on foot. The wild flowers of the mountain-side were interesting, also the fat striped mountain gophers near the tea room who took candy from one's hand.

The great Glacier, 250 feet thick, at Lake Moraine was a sight. Walking along the platform just as our train left, 22 snow-capped peaks could be counted. A few miles on we got a fine view of Castle Mountain, a grand pile.

We arrived at Banff in time for luncheon at the big hotel. Lake Louise with its Chateau is the gem of the Rockies. Both are wonder places, but differ in style and setting. Banff is grand, massive, rugged, the huge hotel in the centre of a circle of great gray mountains, looking down the Bow Valley with its blue-green Bow River. The setting is in perfect keeping and the panorama magnificent. Where can one spend a day for so reasonable an amount and have his eye, ear, and appetite catered to as at Banff? From the rotunda to the swimming-pool, everything is of the best. One can go for luncheon in the great dining-room, lounge in the drawing rooms, play bridge, go for a ramble to the Bow River Falls, play golf, pony ride, take an hour in the fine 90 degree sulphur water swimming-pool, have a splendid evening dinner, enjoy a cigar in the sunroom, watch the day fade away down the Valley, and then have a dance on a good floor with a splendid orchestra. This was one day in the writer's life not soon to be forgotten. As if to make the day complete a rare incident happened at 5 p.m. After a slight shower a huge rainbow curved over the Valley, its bases being planted in the great mountains on either side, a beautiful sight.

A horseback ride up Tunnel Mountain, was a unique experience and the magnificent view of three valleys, Banff Hotel, Town, Golf Links, etc., amply repays one.

Reluctantly leaving Banff at 12.30, we arrived at Calgary at 4 p.m. The boys met us with their cars for a drive around the city. The writer and his wife were fortunately picked up by Dr. and Mrs. Jack Dixon, who entertained us to afternoon tea at the Golf Club. Here we bid a fond good-bye to the Rockies which we could see 60 miles away.

We were much impressed with Calgary, which, like many western towns, is built on broad lines for the future. On the way back to town we passed a great herd of sheep, presenting quite a picture on the slope of a ravine. We had a jolly dinner at the Palliser (another beautiful C.P.R. Hotel), after which an hour was spent in Dr. Clay's office. The buildings are fine and substantial, chief of which is the Hudson Bay Co. There are some very fine residences too. We left Calgary at midnight, and next morning when we raised our blinds we wondered where we were,—not a town, house, or hill to be seen,—everywhere the country flat as a pancake. Such a contrast after a month in the mountains! One found it difficult to grasp the immensity of our great West. The country here is unproductive, and alkali lakes, sagebrush, and cactus much in evidence.

Arriving at Moose Jaw we were again met with motors and given a twenty-minute glimpse of this live town. Dr. and Mrs. S. G. Goodman, of Gravelburg, Sask., left us here, and the Mabee's rejoined the party. Late in the afternoon the Devitt's came aboard at Indian Head. They came from side trips through the Kootenay country and visiting friends.

From Moose Jaw to Winnipeg the soil is black, rich loam of the prairie and the whole country is a vast wheat-field with prosperous-looking homesteads. Dr. Ed. Grant left us at Portage La Prairie.

Before reaching Regina we were treated to a most gorgeous sunset, our first prairie sunset. The whole sky of flaming red formed such a contrast to the black soil. The harvest was on, and gave us a good idea of wheat growing on a large scale.

We woke up in Winnipeg, and had a delightful breakfast at the Royal Alexandra. Many thanks to the Winnipeg boys who entertained us with the lovely hospitality of the West! Drives around the city to Parks, Zoo, Legislative Buildings, etc., a visit to the Grain Exchange where the grading and handling of the wheat was fully explained, luncheon at the Fort Garry, and a royal dinner and entertainment at the Marlborough, made up a great day.

The Garvin's met us here, and the genial Tom Gallagher (Monte)

left the party for Chicago, as also did the jolly Miss Bartindale who remained in Winnipeg. We certainly missed these two people.

Next morning found us at Port Arthur, where we boarded the big Noronic, a luxurious boat with excellent service. Dr. T. N. McGill left us at Fort William.

Passing the sleeping giant, we were soon out on old Lake Superior, leaving the enormous grain elevators at Port Arthur and Fort William in the distance. Thanks to the perfect weather we spent a most enjoyable afternoon and evening, including deck parade, afternoon tea and dance. After dinner we were spellbound by a most wonderful sunset. Just as the sun, like a great drop of blood, dipped into the lake, a black freighter, with a lazy stream of smoke from her funnels, passed directly across the half orbit. The fiery red sky shading to lemon, the smooth slate-blue water tinged with magenta, and the huge, dark red sun, with the black silhouette of the passing freighter on its face, made a wonderful picture and a combination that perhaps would not occur again in a hundred trips up Lake Superior. The evening dance, with the music of the excellent orchestra, closed a perfect day.

Before turning in, a walk around the deck disclosed the lights of sixteen boats, giving one some idea of the great traffic up and down these lakes. Early next morning we were interested in the locking through the great "Soo" locks, and noted the four-million-dollar pile of pulpwood and the great steel plant. A two-hour stop while the Noronic coaled gave us a chance to have a look around the city and post a few cards. The gulls and a piece of meat attached to a long string made much fun.

The weather continued perfect for our trip down Lake Huron. The feature of the evening was a masquerade dance, which, thanks to the ship's social hostess, was greatly enjoyed.

Arriving at Sarnia the next morning, the boat special made a quick run on a hot August day to the old Union Station, and our great trip to the West was over.

It would be hard to duplicate as perfect weather; a most genial party, no accident or sickness, and wonderful transportation arrangements, made a memorable trip. What a pity every Canadian cannot "See Canada First"! He would have a pardonable pride in being a citizen of no mean country, and would be bound to feel some responsibility in shaping her destiny. He would also be much impressed with the courtesy and system of the greatest transportation company in the world, the C.P.R.

PERCY ST. C. SMITH, TORONTO.

Dominion Dental Council

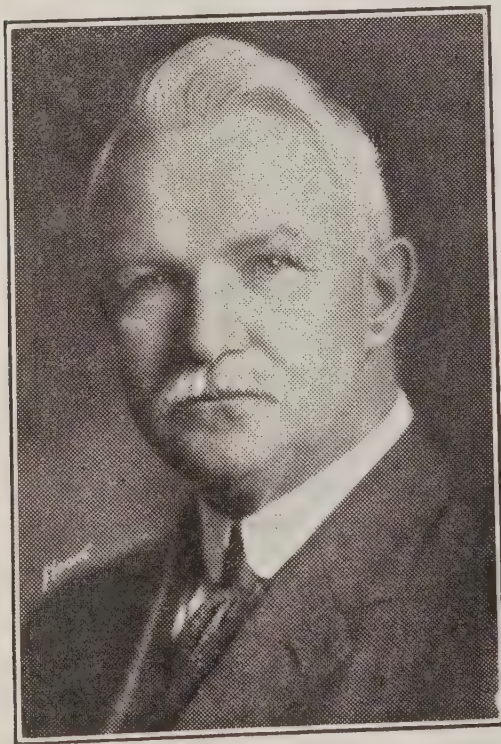
W. M. MCGUIRE, D.D.S., PRESIDENT, DOMINION DENTAL COUNCIL. ✓

[Dr. McGuire practised dentistry from 1893 to 1914 in Waterford. He has been a member of the Board of Directors of the R.C.D.S. from 1912 to the present time. In 1914 he was appointed Registrar of Deeds for the County of Norfolk by the Provincial Government, which appointment necessitated his discontinuing the active practice of dentistry. Dr. McGuire, however, has continued to maintain his keen interest in the dental profession, and as President of the Dominion Dental Council will find many opportunities for further service.]

* * *



QUESTIONS are frequently asked as to the origin and object of the Dominion Dental Council of Canada. This may be an opportune time to give to the recent graduate, and to the older ones who have not kept pace with the progress of organized dentistry, some information that may answer such questions. To do this I know of no better medium than through the columns of ORAL HEALTH, which goes into the office of every practitioner in the Dominion.



Dr. W. M. McGuire.

In the year 1902 there arose a feeling among some of the leading minds in dentistry that there should be some kind of an organization to harmonize the profession in all the Provinces and the North-West Territories, with the object of erecting and maintaining a standard of education and ethics for the dental profession, and to conduct examinations and issue certificates of qualification, which certificates would be accepted, without further examination, by the agreeing Provinces.

Accordingly a meeting was held in McGill University, Montreal, on the 16th day of September, 1902, at which were present Doctors Stevenson, Dubeau, Willmott (J. B.), Woodbury, McInnis, Cowan, Webster, Godsoe

and Bagnall. These men were members of the Executive of the Canadian Dental Association, which was meeting in Montreal at that time. Dr. Stevenson, President of the Quebec Dental Association, was in the chair, and Dr. W. D. Cowan, of Regina, Sask., was made provisional secretary. The Quebec Dental Association submitted a draft of a constitution as a basis for a constitution for the association. After much discussion as to the application of the draft and of many suggested amendments thereto, it was decided that the Code of Ethics of the American Dental Association be adopted for recommendation to the convention in place of the reference to ethics in the draft constitution.

The question of election of officers came up, and it was determined that the convention be asked to postpone the election of officers until the following day, and appoint a Nominating Committee, consisting of Doctors Ives, Abbott, Magee, Cowan and Wright.

The following day, September 17th, 1902, the Executive met again in McGill University. At this meeting it was decided to hold the next meeting of the Canadian Dental Association in Toronto, in 1904, and that it was desirable to form a "Dominion Dental Council." It was further decided that all provincial, territorial, incorporated dental bodies be given equal representation on the Dominion Dental Council.

The afternoon was taken up with detailed discussions regarding the establishment of such a Council, the standard of qualification, who should be delegates, and the method of appointment or election.

The following day it was decided that, in the opinion of the committee, it was expedient to proceed at once to the organization of a "Dominion Dental Council," by requesting the several provincial and territorial incorporated dental bodies in the Dominion to appoint one member to such a Council, these to meet at the same time as the next meeting of the Canadian Dental Association, to formulate a plan for obtaining a qualification for the practice of dentistry, which qualification should be accepted by the several Boards.

At Toronto, on September 6th, 1904, the first meeting of the Dominion Dental Council was held. Those present were: Doctors L. A. Stevenson, Quebec; H. R. Abbott, Ontario; F. A. Godsoe, New Brunswick; J. F. Ayers, Prince Edward Island; Frank Woodbury, Nova Scotia. Dr. J. B. Willmott, of Toronto, was also present, but not as a representative. Dr. Stevenson acted as chairman, and Dr. Abbott as secretary, in the absence of Dr. Cowan, of Regina. Dr. Ayers was present as an alternative to Dr. Bagnall.

The motion adopted at the meeting of the Canadian Dental Association Committee, held at McGill University, on September 18th, 1902, providing for the formation of a "Dominion Dental Council,"

and ratified by the Canadian Dental Association Convention, was read and accepted as a basis for organization. Reports from the Provinces represented were then presented. Reports from Manitoba and the Territories were held over until the arrival of their representatives. Dr. Gendreau was accepted as an associate delegate from the Province of Quebec.

At the next meeting of the Council, upon the following day, Dr. McInnis, of Brandon, reported for Manitoba, and Dr. Cowan, of Regina, reported for the Territories.

It was reported that all of the Provinces were in favor of establishing a "Dominion Dental Council" except Quebec, which declined to commit itself to entering the Council.

Dr. Woodbury submitted the following resolution from the Nova Scotia Dental Association:

"Whereas it is deemed desirable that the Dental Council of the Province of Nova Scotia express an opinion respecting the question of interprovincial standards for matriculation and registration;

"Therefore be it resolved, that the Dental Association of the Province of Nova Scotia hereby places itself on record as in favor of interprovincial standards of matriculation and registration, and further, that the following should be such standards:

"The minimum qualification for matriculation to be Matriculation in Arts in any chartered university or its equivalent.

"The professional qualification shall be equal to the best standard in the Dominion.

"That we believe arrangements must be made whereby men now in practice may secure Dominion registration, who meet certain reasonable requirements and have the endorsement of the Provincial Association of which the candidate may be a member."

Dr. Ayers submitted the following resolution from Prince Edward Island:

"Be it resolved, that the Dental Society of Prince Edward Island should put itself on record as being in favor of reciprocity in dental registration between the different Provinces of the Dominion, by a minimum standard of (1) Matriculation in Arts, and (2) by graduation from a recognized School of Dentistry."

The reports from the different Provinces and Territories being satisfactory, it was decided:

"That in the opinion of this Committee the establishment of a Dominion Dental Council by mutual agreement among the several Provinces is expedient, such Council to have power to grant certificates of qualification, which certificates are to be accepted as qualification sufficient to

grant a license to practise in any of the Provinces entering into the agreement."

The foregoing statement is a brief outline of the organization of the Dominion Dental Council, which has continued to function in the interests of dental standards for over two decades. Dr. W. D. Cowan, of Regina, has been Secretary-Treasurer of the Council from the time of its inception to the present, and has rendered yeoman service.

The present composition of the Council is as follows:

President—Dr. W. M. McGuire, Simcoe, Ontario.
1st Vice-Pres.—Dr. John W. Clay, Calgary, Alberta.
2nd Vice-Pres.—Dr. Geo. F. Bush, Winnipeg, Manitoba.
Secretary-Treasurer—Dr. W. D. Cowan, Regina, Sask.

REPRESENTATIVES ON THE COUNCIL.

Dr. J. S. Bagnall, Charlottetown, P.E.I.
Dr. J. S. Magee, St. John, N.B.
Dr. G. K. Thomson, Halifax, N.S.

BOARD OF EXAMINERS.

Dr. M. A. Ross Thomas, London, Ont., Operative and Preventive Dentistry.
Dr. M. A. McIntyre, Edmonton, Alta., Prosthetic Dentistry, Crown and Bridge Work, and Orthodontia.
Dr. W. P. Broderick, St. John, N.B., Materia Medica and Therapeutics.
Dr. C. H. Weicker, Regina, Sask., Pathology and Bacteriology.
Dr. D. N. Ross, Winnipeg, Man., Anatomy.
Dr. A. W. Cogswell, Halifax, N.S., Physiology and Histology.
Dr. Fulton Risdon, Toronto, Ont., Medicine and Surgery.
Dr. J. Stanley Bagnall, Halifax, N.S., Anaesthetics.
Dr. F. C. Bonnell, St. John, N.B., Physics and Chemistry and Metallurgy.
Dr. H. G. Dunbar, New Glasgow, N.S., Jurisprudence and Ethics.

PRESIDING EXAMINERS.

Dr. J. H. Ayers, Charlottetown, P.E.I.; Dr. S. G. Ritchie, Halifax, N.S.; Dr. F. A. Godsoe, St. John, N.B.; Dr. Wallace Seccombe, Toronto, Ont.; Dr. H. J. Merkeley, Winnipeg, Man.; Dr. J. C. Roberts, Edmonton, Alta.; Dr. C. C. Craigie, Regina, Sask.

The Ontario Dental Convention

FRED J. CONBOY, D.D.S., ✓

Chairman of Board of Governors, Ontario Dental Association.

PERIODONTITIS.



EXPERIENCE has proven that the best way to assist the dentists to get a thorough understanding of the causes and treatment of Periodontitis is through the demonstration clinic. The Programme Committee felt that we should this year give the profession an extraordinary opportunity to see and hear the very latest and best on this important subject, and consequently we have invited the three outstanding men on this continent to present their work at the convention, to be held at the University of Toronto, on May 26, 27, 28, and 29th, 1925.

DR. HAROLD KEITH BOX needs no introduction to the Dentists of Ontario; his work places him in the foremost rank among the investigators and research workers of our time. He will amplify the work covered last year and we hope he will be ready to publish the results of some important studies, which he has been engaged in during the past year. The most satisfying feature of Harold Box's work lies in the fact that he is always making progress in the solution of the great problem that confronts him.

DRS. PAUL R. STILLMAN and JOHN OPPIE MCCALL will be here to present different phases of the work, and the whole subject will be covered in an ideal manner. A more complete outline of the clinics, especially dealing with those to be given by Drs. Stillman and McCall, will appear in the next issue of this journal. In the meantime, make sure that you will be here to take advantage of this excellent opportunity.

We consider ourselves very fortunate indeed in being able to provide for you these excellent clinics and we know that the profession will take full advantage of this opportunity to secure the latest and best information relating to the treatment of this dread disease.

ROOT CANALS.

Every member of the profession realizes the absolute need of following a safe and sane procedure in the treatment of Root Canals. Very few dentists, if any, have reached the conclusion that all devitalized teeth should be extracted, but all appreciate the difficulty of so treating these teeth that they may safely remain in the mouths of the patients.

DR. HARRY B. JOHNSTON, of Atlanta, Georgia, is an outstanding

authority on this subject, and he will be with us in May to cover this branch of our work, under the following headings:

(a) "Pulp Canal Opening and Filling."

(b) "The Positive Destruction of Apical Infection."

Dr. Johnston will also give a number of clinics demonstrating:

"The Callahan-Johnston Method of Opening and Filling Canals." You cannot afford to miss this opportunity.

FULL DENTURES.

The following note from DR. HOUSE of the Deane Institute, Kansas City, who is to cover the work on Full Denture Construction, outlines the material to be presented:

"My lecture to the general group will be upon the subject, *'Correct Diagnosis: Its Necessity and Value.'*" My clinics will show the methods and value of diagnosis, as applied to full denture construction and occlusion. I would like to have several patients who are wearing two full dentures, a full denture and partial denture, a full denture with either natural or bridgework."

This note shows that the subject will be covered very thoroughly, and the name of the Essayist and Clinician is all that is needed to convince you that you should be here to secure the benefits offered.

INLAY AND BRIDGEWORK.

DRS. MORTONSON and MORTONSON, *Milwaukee, Wisconsin.*

Synopsis.

This clinic will embody the following: Cavity preparation, demonstrated by cavities cut in large plaster models; wax manipulation, showing proper condensation at gingival seat; investing wax pattern; burning out of mold, etc.; a technique for the construction of a Fixed and Moveable fixed bridge, showing different steps such as model making, porcelain tips, stress breaking, etc.; a technique showing the various steps in Moveable-removable bridgework. A number of finished cases will be shown. The above will be fully illustrated by the use of lantern slides.

DR. I. ANTE has prepared a considerable amount of new work for presentation at the Convention. An outline of his clinic will appear in the next magazine.

PARTIAL DENTURES.

The Clinic Committee has invited DR. J. GALVIN WOODWORTH, of Buffalo, to present his work on Partial Dentures, and he has decided to come.

An outline of his work will be published later.

FOR MEMBERS OF THE CRAFT.

The Members of the Craft will be the guests of University Lodge, and the meeting will be held at the Masonic Temple, Yonge Street. Dinner will be served at six-thirty, and it will be followed by an hour of entertainment. At eight o'clock members will assemble in the lodge room, where the First Degree will be conferred, the various chairs being occupied by members of the profession. At the conclusion of this ceremony an address will be given by one of the finest speakers in the Dominion. Further information supplied by the Secretary of the Craft Club, Dr. Fred. J. Conboy, Spadina House, Toronto.

DO NOT FORGET!

The Students' Residences are at your disposal during the time of the Convention, at a cost of five dollars for the entire time. Dr. Gus. Kennedy, 86 Bloor Street West, has charge of the arrangements, and the rooms will be reserved in the order in which the requests are received. The annual fee for the convention, which is ten dollars, should accompany the request for a reservation. If there is sufficient demand one of the women's residences will be used for the accommodation of the ladies who accompany the delegates. Full information may be secured from Dr. Kennedy.

GOOD NEWS.

The exhibit space arranged has all been taken up, and a number of firms that have never attended our Convention before have reserved accommodation. We are in the fortunate position that the amount of space available for exhibit purposes is not limited, and the Exhibit Committee of which Dr. Roy Zimmerman of 5 Roehampton Street, Toronto, is Chairman, has taken over additional rooms. This new area will be in every way as good as either of the large rooms already fitted, and we will be able to provide for many of those who have not yet made application. Exhibitors are urged to send in their request as soon as possible.

AN IMPORTANT QUESTION.

"Should I extract this tooth or should I attempt to save it?"

This is the question that is hard to decide and yet the permanent success of our efforts and the health of the patient is determined by the conclusion which we reach. Most dentists possess sound surgical judgment, but even with this ability we cannot arrive at a satisfactory decision unless we know all the facts involved. DR. WESTON PRICE has made a thorough study of dental infection and the relationship between

focal infection and inherited and acquired resistance to disease, and he will tell us when in his opinion we should attempt to treat a tooth and when it should be removed. This is a most important question; it concerns the health and even the life of our patients and we cannot conscientiously continue to practice dentistry unless we place ourselves in possession of available knowledge upon this subject. Let us get all the facts and then use our own best judgment.

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ARRANGEMENTS are being made for the College "*Home Coming*" and the *Annual Dinner Dance*. A full report will be presented in the next issue.

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MEALS for everybody at Hart House at a reasonable charge.

* * *

COMPLETE ANNOUNCEMENT in regard to the Clinics in Oral Surgery, and Practical Dentures will be made next month.

* * *

For information in regard to the individual clinics, write Dr. Spence Clappison, 46 Sun Life Building, Hamilton, Ont.

* * *

BE IN TORONTO during the *Big Convention Week*.

Hospital Dental Department



THE Director of Dental Services, Province of Ontario, has completed arrangements for a dental department at the Western Hospital, Toronto. The new section will be known as the Department of Dental Surgery and Pathology, and Dr. Harold Keith Box will be Chief of Staff, with Dr. H. G. Robb as First Assistant. The other dentists who assist will be placed upon the active staff, and will enjoy all the privileges and advantages provided by the Hospital. Dr. W. S. Madill, who has done such excellent work at the Western Hospital, will continue in his present position, and having charge of the administration will co-operate with the new Department. Arrangements have also been made for a dental interne, who will occupy a position similar to that enjoyed by the other house surgeons. The new Department has the active support of the Honorable Dr. Forbes Godfrey, Minister of Health, and from present indications this departure will develop into a most satisfactory and efficient hospital health service.

Fire and Food and the Functions of Teeth*

WALTER STAPLEY, M.D., M.R.C.V.S., D.V.Sc. ✓



COMPARATIVE anatomy is a dead subject. It was unintentionally killed by Huxley when he shattered Richard Owen's place in the scientific world. It is remarkable that medical education has separated physiology from anatomy, and thus obscured the domination of function over structure. Text books on human physiology do not deal with the functions of teeth. Comparative anatomy is a much wider and comprehensive thing than human anatomy, it deals with cause and effect and it takes us into remote periods of the world's history. And lest we may think dental surgery a new art, or dental caries a recent disease, it is well to remember that the ancient Egyptian dentists successfully filled teeth with gold. It is almost certain that dental caries was as prevalent in ancient Egypt as in medieval England.

Through the enormous eyes, covered from the origin of teeth in fish, to the age of mammals, when animal life was stricken by the glacial periods and man was saved from extinction by his discovery of the use of fire, there would seem to have been no dental caries in the world. It occurs in direct proportion to the application of fire to food; it is universal in civilized men and infrequent in savages, it is rare in domesticated animals and unknown in wild. The development of mechanical industry has given such an impetus to dental caries that it has become the most common of human diseases. If the test of health be applied to the teeth of the people of New Zealand, and the condition be considered, which on the examination of a sufficient number is found to be commonest, the absurd result comes out that dental caries is normal and sound sets of teeth abnormal.

Primitive Prehensile Teeth. Before the origin of teeth, vertebrae were established to give speed and direction to the body in the pursuit of its prey. To enable the caught food to be held in the mouth and directed through the jowl into the stomach, holding points were essential. This need of function set up energies that built the structure of prehensile teeth. Fish scales were calcified and formed into teeth, in one or more rows. The scale formation of teeth is well shown in those very old vertebrates, the sharks. The swoop of the shark, delivering its hold bite, and the lunge of the greyhound, snapping its coursed hare, display, in graceful movement, the prehensile function of teeth. It is

* Read before the members of the Auckland Branch and published in the New Zealand Dental Journal.

traceable through fish, in the reptiles, to the mammalian dog, where it is lost. It is transferred to the tongue of the chameleon, the trunk of the elephant and the hands of man. Man has lost the prehensile function of teeth; the tooth tissue transmitted to him from this lost function by heredity is vestigial. It is hidden and buried in the structure that later acquired functions have built up.

Development and Involution. During the period from the early sharks to the origin of the dog, teeth were developed and suppressed in varying degrees; toads became edentulous and replaced their teeth with horn, snakes retained prehensile teeth adding thereto poison teeth, crocodiles developed towards the low mammalian type of the carnivorous mammals, and in the mammals themselves teeth ranged from extinction to the highest development.

Extinction of Teeth. Whales are edentulous, elephants have no incisor teeth and cattle no upper incisors. The trunk of the elephant usurps the function of incisor teeth; it pushes food so forcibly into the mouth that the incisor teeth have been rasped into extinction. The baleen plates of the whale have occupied the dental areas and suppressed the teeth; which is not absolute, for the tiny vestigial teeth of whales are prized as jewellery. Cattle have no upper incisor teeth, because a prehensile tongue plays over the incisor area in a manner hostile to its teeth. The edentulous state is never reached before complete cessation of tooth function is established, and not even then until the vestigial teeth be attacked by hostile energies of a volume greater than those that established teeth. Edentulous man, the dream of the man with toothache, is a myth. The infections, avitaminosis and thermic states that induce dental caries, are accidental affairs that have no effect on the suppression of teeth. Whilst man's teeth functionate he cannot become edentulous. Atrophy from disuse is the converse to development through function; the extinction of teeth is hostility to the primary energies that originated teeth. The smallness of man's jaws to-day are due to loss of function resulting from milling and cooking food. It is not progressive because sufficient function remains to keep them in their present poor state of development. The destruction of teeth by caries is not a process working towards the edentulous state; such accidents have no influence on heredity.

Fighting Teeth. The function of fighting follows on that of prehension, with which it is in many ways akin. Fighting teeth attain the highest development of all teeth, and in that animal that has given rise to the mythical unicorn, the narwhal, only one tooth exists; it is a pole ten feet long and four inches through the butt. This tooth and such teeth as the tusks of mastodons and elephants, walruses and wild boars, have no direct bearing on the fighting teeth of man; into them the impulse of sex and

other factors enter. The fighting teeth of man are called canines, the name is ill chosen because dogs have only a moderate development. In place of dogs' teeth a better name would be the teeth of the temporal muscles, by which they are activated. Canine teeth are not as well developed in hyenas as in lions, in wolves as in tigers, and they reach their relative highest development in the mongoose, the quickest of all biters. In primates canines are well-developed, those of the baboon are proportionately as strongly developed as those of the lion. When man became erect, he abandoned fighting teeth and took to the club and sling; the fighting superiority he has attained with explosives is fast exterminating large animals that fight with canine teeth. Man has lost his tooth-fighting function as completely as he has lost the primitive prehensile function. The canine teeth of man are larger than his incisors because they have acquired cutting function and the tissue which this calls forth is built into the vestigial structure of fighting and prehensile functions.

Grinding Teeth. The impulse to roam the land for food abolished the sprawling gait of reptiles and established elevated quadrupedal progression. The mammalian neck was formed and a narrow tube from the mouth to the stomach. The oesophagus makes it impossible for mammals to swallow prey, whole, and vegetation, without mastication; the fish and reptilian habits of swallowing things whole had to be abandoned. The new disease, choking, was a stern taskmaster, that set the molars to the grinding of food. Passing from carnivora, through omnivora, to herbivora, there is an ever increasing size and complexity of the molar teeth, reaching the summit of development in the elephant. Cellulose is the great developer of molar teeth. There is a very interesting difference between the molar development of cattle and horses. The horse eats slowly and masticates thoroughly and he has enormous strong molar teeth. Cattle gorge and attempt to swallow grass in the reptilian way; with slight modifications they do so and pack away in oesophageal dilations some 45 gallons of grass and water to be par-boiled and then returned to the mouth to be masticated, in that peculiar way called rumination. Were it not for the maceration of food in the paunch, cattle would require molar teeth at least three times as large as those they now have. Rumination is the nearest approach to cooking that the animal world attains. From the repression of size which rumination has induced in molar teeth, it follows that were not man's food milled and cooked his molar teeth would be more developed and dental irregularities would be less frequent. Soups, stews, porridge and steamed puddings make the work of molars fitful; and the munching of hard lollies provides a culture medium for organisms, bent on mischief.

Cutting Teeth. As the purpose of this discussion is to consider only the digestive functions of teeth, or the food procuring function, the im-

portant functions of speech and adornment will not be considered. Amongst primates man has the best developed incisors. Cutting teeth reach the peak of development in the rodents. Of the four functions of teeth, prehension, fighting, cutting and grinding, man has lost two and retained two. The growing habit of spraying apple trees with arsenate of lead, the silly practice of slapping children for eating carrots raw, the finicky use of knife and fork to fruit, are all inimical to incisor teeth. Successful farming depends on a knowledge of incisor teeth. Thus cows cannot follow horses at pasture because the incisors of horses cut closer to the ground. Three-year-old horses on short grass lose condition because they then lose the central temporary incisors and cannot eat short grass.

Enamel Not a Protector of Dentine. Some claim that defective enamel is the cause of dental caries. In the skulls of old fern-eating Maoris, it is common to see the crown enamel worn away and the floor of the grinding surface of the molars composed of sound dentine. All high class molar teeth form the grinding surface with ridges of enamel and valleys of dentine. In such teeth dental caries does not occur. Those who claim defective enamel as a cause should ascertain why the enamel is defective, and they should further add that associated with this defective enamel is a still more defective dentine. When teeth are wholly used on uncooked and unmilled food, no dental caries occurs; the diseases of such teeth are those of wear and injury. Of course the attack of micro-organisms that establish dental caries is from a biological standpoint an injury and nothing more. Sheep and horses that are pastured on hard wiry grass wear out their teeth before they become old.

Adaptability. Wild animals fit their environment and have sound teeth. Nothing changes their lives except glacial periods, rifles and steam locomotives. Against such things they have no defence. They are of rigidly fixed type. Man and the animals he controls are uprooted from the natural environment and scattered pell mell about the earth. A heavy strain is put on adaptability, when it breaks disease results. Scurvy was the first disease of this type to be understood, and rickets is that which has been most fully investigated. Experimenters can produce it at will and cure it readily by applying the conditions and food that restore health. Bran-hiccough, beri-beri, osteoporosis, goitre, osteomalacia and dental caries belong to this class of disease. They are wrongly called deficiency diseases, they should be classified as the diseases of broken adaptability. Man is so extremely adaptable that he usually forgets that adaptability is limited. Perhaps the animal with the least of this quality is the koala, the teddy bear of Australia. When this little harmless fellow is taken out of the tops of the gum trees and

fondly cared for and fed on selected fresh gum leaves he invariably dies in three months.

Green Vegetation. Scurvy demonstrates the importance of green leaves as food. Salads are rejected because of the fear of hydatid infection. The exclusion of lettuce, onions and watercress from our tables induces more appendicitis than it stops hydatid disease. Our abundant water supply makes such food safe if we are not too lazy to wash it.

Milk. Fresh milk is more appetizing than cooked, and because our general food is cooked and uncooked is needed, it occupies an unique position amongst our foods. Man uses increasingly the natural food of calves to nourish his adult tissues. During the time a babe suckles the breast, it has no teeth till weaning-time approaches. The coming of teeth prepares the child for life independent of the mammary gland. When, from various causes, the human breast fails to yield milk, a substitute has to be found. This is not determined by the need of the child, but by convenience of trade. Cow's milk is less suitable for infants than goat's milk. Apart from this suitability cows are highly susceptible to tuberculosis and goats are immune.

It is well established that milk contains nutrition for all the tissues of the body, therefore it is self evident that milk contains the materials from which teeth are built. If a mammalian female be half starved during gestation, she uses up her own tissues to nourish the foetus. More severe starvation making the sacrifice of maternal tissue inadequate for the needs of the foetus, leads to the birth of a defective offspring. Because of this it is claimed that dental caries is due to defective maternal nutrition. The claim is too exclusive. A milk diet offers nothing on which teeth can perform their function. Had the human organism been fed on milk, continuously and exclusively, from its unicellular state, it would never have evolved teeth; for the need of teeth would not have arisen. There has been a jumbled mixing of nutrition and function in much that has been written recently about teeth.

Dental caries is a disease of broken adaptability: microbic infections, sugar, defects in the metabolism of calcium and phosphorus, and avitaminosis are some of its parts. The great outstanding differences between men and animals is the use of fire and the prevalence of dental caries in man and its absence from animals. Further experimentation is called for to unravel the cause of the commonest disease of man, dental caries, not with rats and dogs as is so often done, but with an omnivorous animal, that lends itself to this work. There is only one animal that is worthy of consideration, and that is the pig. The question of soil defects would be involved; it would be necessary to conduct experiments in different localities. Thus, in certain parts of Victoria osteo-porosis is rife amongst horses, and it is said by observant men that

the only fertilizer that does any good in that country is superphosphate. Be that as it may these soft jelly-boned horses have sound teeth. Horses live by their teeth, whilst they remain sound there is the possibility of change and a proper nutrition of bone resulting, the selective affinities of the body being that non-vital structures suffer before vital.

Mouth Hygiene

BY C. DOSWELL WALLIS, L.D.S., R.C.S., M.I.H. ✓

Those who are called upon to give lectures to lay audiences will find several points suitable for elaboration in these notes, which are published by courtesy of the author and ORAL TOPICS.—Editor.

* * *



THE function of healing which by some is thought to be the chief duty of the medical and dental profession to-day, occupies the position of a last resort only in relation to other considerations.

Now organized efforts are being made all over the world to PREVENT disease, men of learning giving up their time and skill to discover valuable additions to our knowledge of preventive medicine.

Public health authorities everywhere consider it of greater importance to vaccinate members of a community threatened with an outbreak of smallpox or typhoid, etc., than to cure the individuals affected. Anti-toxins are administered more frequently to prevent disease than to cure it. A surgeon frequently spends more time over antiseptic precautions than on the actual operation. Pure food laws and regulations are enforced and good sanitary surroundings are created that people may receive proper nourishment and *keep* in good health.

All this, and more, is being done to KEEP people well, and supplied with uncontaminated food, but only recently has the influence of a clean and healthy mouth been recognized as an ALL-IMPORTANT FACTOR in the PREVENTION of disease and the building up of health.

Disease-producing bacteria are normally present in every mouth, which is an ideal breeding ground for germs of all kinds.

The cavities in teeth broken down by decay form perfect incubators for the propagation of micro-organisms, which, multiplying with inconceivable rapidity, soon find their way into the digestive and alimentary tracts and general lymphatic system.

In a mouth containing carious teeth, more than a dozen different kinds of pathogenic organisms are to be found, including those of pneumonia, diphtheria and tuberculosis. It is now fully recognized that systemic

infection with tubercle bacilli takes place through the mouth and gastrointestinal tract in fully 75 per cent. of the cases; indeed, a septic mouth with carious teeth is considered by some authorities as of greater importance than a poor family history. A child with defective teeth is besides undoubtedly more easily a prey not only to these, but to many other infectious diseases, including measles, scarlet fever and influenza. Under these conditions, also, septic material and germs are always in contact with the fauces and pharynx, this being one of the chief causes of enlarged tonsils, adenoids, ear disease and other minor ailments. Almost half the diseases of children could certainly be avoided by thorough attention to a healthy state in the mouth from an early age. In addition, the unfortunate sufferer is largely incapacitated by auto-intoxication, both physically and mentally. The breath is foul and offensive to bystanders, and yet has to be constantly inhaled by the unfortunate victim. The food is bolted, and the stomach, already irritated by constant poisoning, refuses to do its work properly, indigestion and an imperfectly nourished body resulting. As a consequence of bad teeth and an unsatisfactory condition in the mouth, a child's physical development is seriously hindered. This almost invariably leads also to lessened mental capacity. The worse the teeth, the worse, as a rule, the position in school.

Dental caries is the most common disease affecting civilized human beings. It affects all ages, but is most prevalent in childhood and adolescence. It is also the most easily PREVENTABLE. Its ravages may be very markedly reduced by keeping the mouth and teeth clean, and by vigorous use of the teeth themselves in mastication. The teeth should be cleaned, if possible, after every meal, but at least TWICE A DAY, morning and night, night-time being by far more important.

As it costs less to prevent teeth from decaying than to repair the damage once it has occurred, frequent visits to a dentist are indicated in the interests of *prevention* of dental disease and toothache.

At birth a child has in its jaws the germs of some fifty teeth. Twenty of these are to be *deciduous* or milk teeth; the remainder belong to the *permanent* set.

We see, therefore, that most of the teeth an individual will ever have are already commencing to form in the jaws at birth, and continue to grow and develop until the time of their eruption, when the crown (or exposed portion) is complete, the roots, however, not being completely formed until some two years after the tooth is out.

It is, therefore, perfectly clear that any diseased condition (locally) in the mouth or of the temporary teeth must be very apt to damage the delicate growing, partly-formed teeth embedded in the jaws. General disorders also, which affect the skin (e.g., exanthematous fevers) or such

as lead to continued malnutrition (and in these diseases teeth themselves, and the consequent imperfect mastication, are the chief offenders) will so interfere with the proper growth and development of these forming teeth that when they are cut they will readily become a prey to the ravages of dental caries, especially if erupting into a mouth already affected by this disastrous disease and replete with infectious material.

The first temporary tooth to make its appearance in the mouth is the lower incisor, about the age of six to seven months. The other temporary teeth erupt at intervals during the first two years of the child's life, at which age the temporary set is complete.

Many people fail to appreciate the necessity for retaining these teeth in a healthy condition in the mouth. They are, however, proportionately, more important to the individual than the permanent ones even, because disease or premature loss occurs at a time when the child should be laying the foundation for sturdy health, and when suffering and neglect are not so well borne as in adult life, in addition to the adverse influence exerted upon the developing permanent teeth.

The first of the permanent teeth to erupt, and by far the most useful and important one, is cut at the age of six to six-and-a-half years. This is the first permanent molar, and erupts at the back of the dental arch, **BEHIND** all the milk teeth and **BEFORE ANY OF THEM ARE SHED**. From its position and size, it is designed to bear the brunt of mastication, more especially during the period that the teeth are being changed. Frequently, due to lack of cleanliness, improper diet and failure to appreciate the tooth's great value, it is quite early the seat of decay. As it is commonly supposed to be a first tooth, its premature loss is not considered any great disaster by those who fail to recognize its immense importance. It is, nevertheless, the largest tooth of all, with long, deeply-imbedded roots, and placed in a position in the mouth of the greatest mechanical advantage; and when it becomes diseased, and is lost, it is indeed a **DISASTER**. Not only is the growing child deprived of its use, but its early loss tends to cause irregularities and crowding of the permanent teeth, a result which is not only unsightly, but which invites decay.

The early premature loss through decay or extraction of the temporary molars allows this large first permanent tooth to move forward in the jaw, so that when, later, between the tenth and twelfth years, the cheek teeth should replace these temporary ones, there is not sufficient room for them and they are forced out of the arch and an unsightly irregularity results, predisposing to caries.

This false and irregular position prevents the teeth from meeting properly those in the opposite jaw, and thereby not only is their usefulness greatly diminished, but they the more readily become diseased,

as from their irregular position they are not cleaned during mastication, and are difficult to get at with a tooth-brush. Besides, never doing their proper work and getting insufficient exercise, they deteriorate and decay.

The permanent front teeth are cut next, between the seventh and eighth years, the other members of this second set arriving in the mouth at intervals till about the twenty-fifth year.

This completes the dentition, which involves the life of usefulness of fifty-two teeth, almost all of which have already started to form in the jaws of the baby before birth. In the young adult, twenty of these have vanished, leaving behind a lasting record of helpfulness or harm, depending upon how they were treated and cared for during their transitory occupation of the mouth. When the milk teeth are diseased or lost before their proper time, their permanent successors are placed, from the first, at a great disadvantage, for which there is no remedy.

One cannot fail, therefore, to appreciate the tremendous importance and lasting effect on the mouth, teeth and system generally, of constant care and attention to these baby teeth from the very first, that none may be lost before their time, and all serious dental disease and deformity largely prevented. At present, dental inspection of school children reveals the appalling fact that over ninety per cent. of the scholars between the ages of five and fourteen are dental cripples, many of them hopeless and helpless.

What we have to consider is:—If the teeth play so important a part in the well-being of the individual, why not save them? And how can they best be preserved in a healthy state?

One of the most helpful and simple factors in attaining this end is by keeping the teeth clean and free from all debris. They should be brushed regularly, with a fairly stiff bristle brush and a reliable tooth-powder, which must be free from grit. The brushing should commence on the gums and come up on to the teeth with a sweeping movement, in the direction of the length of the teeth, both above and below, inside as well as outside. The brush should be rotated when in use, so that the bristles will wipe all the small particles of food from the spaces between the teeth. Do not brush the teeth crosswise, as this rubs the gum away from the teeth and will, in time, wear grooves in the teeth themselves. The masticating surfaces of the back teeth must also receive attention, those furthest back need brushing the most, and it is on these surfaces that caries often starts. Brushing the gums as well as the teeth is a habit to be acquired gradually. Start with a brush of medium hardness and go slowly at first, or the gums may become sore. Little by little the gums harden and get tougher, until the more they are scrubbed the better they feel, and indeed, the better and healthier

they in reality become. Gradually brush harder and harder, and get to use brushes as hard as you can buy. Time may be lost at first trying to do things right, but soon a habit will be formed that is priceless.

The time at which it is most necessary to clean the teeth and mouth is BED-TIME. This ensures there being no scraps of food left to decompose around the teeth whilst the movements of the mouth and tongue are in abeyance during sleep. Next to bed-time, the most important is in the morning AFTER breakfast. The ideal way, of course, is to cleanse the mouth after each regular meal as well as at bed-time. It is well to note that the habit of eating lunches and, worse still, sweet-meats between meals is even more hurtful to the teeth than it is to the general health.

As soon as a child has any teeth, it is important that they should be kept clean *and used*. Commencing at the age of two years, the child should be examined by a dentist accustomed to dealing with young children, at least every three months, so that any treatment necessary may be undertaken before the diseased condition that may be present has time to attain serious proportions.

This care and attention should be continued throughout school life. After the age of fourteen, when all the permanent teeth (with the exception of the "wisdom teeth") are in position in the mouth, a visit to a dental surgeon every twelve months, together with continued attention to cleanliness, should be sufficient to ensure the mouth keeping healthy, unless discomfort should warn one that more frequent attention is required at any time.

To assist in the carrying out of this necessary habitual cleanliness of the mouth amongst school children, tooth-brush clubs should be established at all dental clinics.

Here good tooth-brushes and suitable tooth-powder should be obtainable at cost price. The dental nurse should also attend to give each child instructions as to the best way of cleaning the teeth. It might also, in some instances, be useful to establish branch clubs at some of the schools.

The treatment centre of dental clinics should be considered as but part of a scheme of GENERAL DENTAL HYGIENE.

The CURATIVE treatment of dental disease is carried out at the clinic, and instructions given as to the care of the teeth and similar subjects.

But this is very far from all that is necessary. Constant care and attention to cleanliness and mouth hygiene is essential to keep the mouth in a healthy condition, and PREVENT the onset of disease, or its recurrence.

If the fingers or toes of the population began to ulcerate and decay, there would undoubtedly be a great outcry, and every available means adopted to cure and prevent such a catastrophe.

But the TEETH are more necessary to beauty and to *health* than are toes, and yet they are allowed to get into a most seriously diseased state before any care is taken of them, when they have in a good many instances to be extracted and lost.

WOULD WE SO CALMLY SUFFER THE LOSS OF ANY OTHER PART OF OUR BODIES?

Paris Women Dentists

GEORGE CECIL, PARIS, FRANCE. ✓



FIVE AND TWENTY years ago Paris rejoiced in three women-dentists. They did not, however, thrive, for the public distrusted them, while the male dental surgeons, resenting their unconventional activities, made every possible effort to discredit the workers. Tales about the ladies' reputed incompetence were circulated; competitors accused them of extracting the wrong tooth and of not knowing one pair of forceps from another. In due course the badgered practitioners gave up the struggle; retiring to the provinces, they met with better luck, the country towns then, as now, being none too well provided for. Fees in plenty were theirs.

Since those far-off and unlightened days Paris has become broader-minded. At the moment the "illuminated city" supports no fewer than eleven women-dentists, each of whom has an excellent practice. Five of these practitioners have qualified in Switzerland, two in London, and the remainder in Paris. No male operator dreams of belittling them; indeed, several leading male dental surgeons have paid a handsome tribute to their skill, which is undeniable. When the Queen of Spain was last in Paris she had a tooth filled by a woman-dentist who, in ten years, has built up an enviable connection amongst the rich and great. The fortunate *dentiste* has averaged an income of fifteen thousand francs a month for the past three years. Another rarely makes less than three thousand francs a week.

The patients include timid men, who are under the impression that a woman is bound to treat them gently. But the women-dentists harden their hearts when necessary, and the victim, for very shame, controls his anguished feelings. One of these dental surgeons, by the way, has recently married a practitioner of the opposite sex. A professional *entente* could go no further.

Lecture Notes in Periodontology

(Gleaned from students' notes of lectures delivered by Dr. Harold K. Box to fifth year dental students.)

* * *



PERIODONTOLOGY is the science that deals with the diseases of the periodontal tissues. In a brief history of periodontology Dr. Arthur Merritt states that diseases of the periodontium are as old as recorded history. Frequent mention is made by ancient writers of "loose teeth," "shaking teeth" and "hemorrhage of the gums." In the Ebers papyrus, which dates from the thirty-seventh century B.C., certain remedies are prescribed "to strengthen the gums." There is plenty of evidence to show that such diseases were prevalent among the early Greeks, Phoenicians, Etruscans, Hebrews, Chinese and Romans. This is true also of the Egyptians, as can be verified by an examination of mummies. Dr. Robert M. Box has shown the evidence of periodontal disease in the skulls of North American Indians and Eskimos. Among the writings of early peoples many allusions have been made to "loose teeth," "bleeding gums," with their discharge of "corruption." Such terms point to the prevalence of periodontal disease in olden times and that the pathology was evidently the same as to-day.

The people of the middle ages were also subject to these lesions, and from the first century of the Christian era to modern times many references are made.

Galen, who lived in the second century, ascribed the cause of periodontal disease to "a relaxation of the dental nerve, due to an excessive abundance of humors."

Fauchard, in 1723, stated that "little or no care as to the cleanliness of the teeth is ordinarily the cause of all the maladies that destroy them." This is one of the earliest expressions of the importance of oral hygiene.

Early practitioners of dentistry on this continent regarded periodontal disease as incurable, and believed that it was of constitutional origin and more or less inevitable in adult life. The disease, however, remained a mystery, and, as Dr. Merritt has stated, "The dawn of a better day was at hand. The theories which had encumbered it for centuries were swept aside. The assertion was made that the disease was of local origin and could be cured by local treatment."

Some milestones in the progress of modern periodontology:

1. John M. Riggs, born 1810, died 1885, has been called the "father of periodontology." He asserted that the disease was local and curable, and that the treatment was surgical. He is given credit

for being the first to successfully treat this disease and to invent instruments for that purpose. Compared with present-day instruments, those invented by Riggs were crude and clumsy.

2. 1877.—Dr. F. H. Rehwinkel read a paper entitled “Pyorrhea Alveolaris.” That he devised the term is probably incorrect. The term is one widely known to-day, possibly because it was the first attempt to suggest the pathology of periodontal disease.

3. 1892.—Dr. Wm. J. Younger positively asserted for the first time that, as a result of proper surgical treatment, obliteration of periodontal pockets could be accomplished through reattachment of the soft tissues to the cementum. Before the Second District Dental Society of New York, on December 12, 1892, he stated: “The treatment of pyorrhea alveolaris by the method recommended by myself to you several years ago is meeting with unabated success in my hands. Teeth hanging by apical attachment only have been rendered firm, and the tissues of the diminished sockets made so to contract and unite with the roots that an instrument could not be introduced between them without force and causing pain and bleeding. I am satisfied that attachment takes place in these cases, otherwise the teeth could not become so firm and the gums and tissues of the socket cling so to the tissues of the root. It is, therefore, an easy matter for direct union to be established between these healthy living tissues when the partition of calculus is thoroughly removed from the root and a granulating surface produced in the environing soft tissues of the gingivus.” Dr. Younger depended upon surgical procedures for his success, and devised instruments many of which are in general use to-day.

4. 1898.—Dr. W. G. A. Bonwill stated that he finds “usually three-fourths of the necessary treatment (of pyorrhea) is to get a thorough articulation (occlusion) of the teeth.”

5. 1900.—Károlyi, of Vienna, strongly advocated the establishment of a sliding occlusion and the relief of abnormal stress by the proper grinding of the cusps of the teeth.

6. 1911.—Hopewell-Smith, eminent dental pathologist, stated that so-called pyorrhea alveolaris does not begin as a gingivitis. This finding was contrary to the teachings of Miller, Roemer, Langraf and Black, who thought that the condition commenced as an infective process, starting as a gingivitis and later invading the deeper structures. Hopewell-Smith stated that the primary lesion was an osseous one, an atrophy of the bone.

7. 1914.—Dr. John Oppie McCall, of New York City, with the co-operation of Dr. Grace Rogers Spalding, of Detroit, called together a committee on organization for the purpose of forming a national organ-

ization, to the end that those especially interested might meet and work together without prejudice for the scientific investigation of caries and periodontal disease, and that the practice of periodontia as an exclusive specialty might be encouraged. In Cleveland, May 23rd, 1914, a national organization was formed, and is known as the American Academy of Periodontology. This organization has met annually since that date, and has done much to place periodontology upon a scientific basis.

8. 1917—Dr. Paul R. Stillman, noted author, dental observer and periodontist, of New York City, created the term "traumatic occlusion" to describe certain inharmonious occlusal relationships which are of such a nature as actually to produce injury to the supporting tissues of the teeth. To Dr. Paul R. Stillman, more than any other periodontal observer, is due the credit of defining and teaching the role played by occlusion in the development of periodontal diseases.

9. 1918.—Dr. McCall correlated and arranged in logical sequence the etiological factors in periodontal disease. Dr. McCall has recently been appointed Professor of Operative Dentistry in the New York College of Dentistry.

10. 1924.—Dr. Harold K. Box, who with Hopewell-Smith, Talbot, Fleischman and Gottlieb, believes that the primary lesion in so-called pyorrhea or chronic periodontitis complex, was not a gingivitis, described a lesion, termed by him Rarefying Pericementitis Fibrosa, and submitted evidence to show that while the rarefaction of the alveolar process is an early spectacular phase of this disease and always preceded the gingival lesion, yet the essential primary lesion is in the pericementum. Dr. Box also submitted evidence to show that chronic periodontitis is a curable disease. His statement was as follows:

"In view of the evidence just submitted, it is interesting to refer to the pessimism of most writers on this subject regarding the possibility of cure in a mature case of Chronic Periodontitis, Complex. That this pessimistic attitude has not been justified may be demonstrated through a review of the following fundamental postulates whose truth, we believe, has been established in this paper (Studies in Periodontal Pathology).

"1. The progressive nature of both of the basic lesions (Rarefying Pericementitis Fibrosa and Infective Periodontitis). It will be recalled that the regressive changes in the alveolar bone are secondary to progressive changes in the pericementum.

"2. The demonstration that reattachment of the soft tissues to the cementum may be induced.

"3. The demonstration that rarefaction of the alveolar bone can

be arrested and that, in many cases, an actual regeneration of the alveolar bone may be induced.

"These three postulates may be summed up in the form of the following proven hypothesis—Chronic Periodontitis belongs to the category of curable diseases."

NOMENCLATURE USED IN THE ROYAL COLLEGE OF DENTAL SURGEONS.

Marginal Gingivae.—Rising from the cemental gingivae and supported by them are wedge-shaped tissue extensions which encircle the enamel at the cervix, and which are known as the marginal gingivae.

Cemental Gingivae.—The main bulk of the gingival tissues rests upon the crests of the alveolar process and is supported by them. Attached to the cementum from the level of the alveolar crest to the gingival line, which is marked by the amelo-cemental junction, is the division of the tissues known as the cemental gingivae.

Alveolar Mucosa is that part of the soft tissue which overlies the alveolar process, and is firmly attached to it by a dense interlacing meshwork of fibres of white connective tissue.

Crevicular Epithelium.—By this term is denoted the stratified squamous epithelium which covers the surface of the marginal gingiva in apposition with the enamel. It will be recalled that the marginal gingivae, by their contact with the enamel, form the so-called gingival crevice.

Pericementum.—The pericementum is the tissue that fills the space between the root of the tooth and the wall of the alveolus and attaches the tooth to the alveolar process.

Alveolar Process.—It may be acceptably defined as the bone which immediately invests the roots of the teeth together with such adjacent bone as is intimately concerned in their support.

Periodontium.—The term periodontium is used to designate the supporting tissues of the teeth. The three essential tissue-components of the periodontium are the gingivae, the pericementum and the alveolar process.

Periodontitis.—By the term periodontitis is denoted an inflammation of the periodontium, and a disease so designated involves all three components.

Gingivitis may be defined as the reactive phenomena of the gingival tissues to any injury done to them.

Chronic Periodontitis, Simplex.—In the Simplex type of Periodontitis the gingival lesion is the dominating one. It represents a simple reaction to bacterial invasion whereby through local lowered resistance

in the gingival tissues infection has been established. Consequent upon the loss of gingival attachment, absorption of the alveolar crest takes place, again an inflammatory reaction to toxic agents. In the majority of cases in which superficial causes are the dominating ones, progress is fairly slow because of the fact that the pericementum is high in resistance.

Rarefying Pericementitis Fibrosa.—This is a chronic and progressive lesion of the pericementum which results in the rarefaction and destruction of alveolar bone. The process consists of the formation, in the pericementum, of a new tissue which, on the one hand, changes the normal arrangement of the pericemental structures, and, on the other, replaces the bone substance of the alveolar process. These changes in the pericementum and the alveolar bone are concomitant lesions. This new tissue subsequently assumes the form of a fibrillar connective tissue.

Chronic Periodontitis, Complex.—In the Complex type there are to be found two principal lesions: 1. Rarefying Pericementitis Fibrosa. 2. Infective Periodontitis. The Rarefying Pericementitis Fibrosa is the primary lesion, the establishment of infection in the gingival tissues being as a rule subordinate to it. That is to say, in a mature case of Chronic Periodontitis, Complex, there is an Infective Periodontitis superimposed upon a Rarefying Pericementitis Fibrosa, this primary lesion having brought about its establishment and remaining, as a rule, the dominating lesion.

Physiological Occlusion may be defined as a condition in which the systems of forces acting upon the tooth during occlusion are in a state of equilibrium, and do not and cannot change the normal relationship existing between the tooth and the supporting structures.

Traumatic Occlusion on this basis may be defined as a condition in which the systems of forces acting upon a tooth during occlusion are not in equilibrium. Stillman and McCall have defined it as an abnormal occlusal stress which is capable of producing, or has produced, an injury to the periodontium.

Torque is the value of a force to produce rotation around a given axis. It is measured by the magnitude of the force multiplied by the perpendicular distance from the point of application.

Signs of a Chronic Periodontitis, Simplex.

1. Characterized by slow progression.
2. Shallow pocket formation.
3. Little divergence from normal mobility in the early stages.

Signs of a Chronic Periodontitis, Complex.

1. Characterized by rapid development of the periodontitis.
2. Formation of a deep and narrow pocket.

3. Marked divergence from normal mobility.

STANDARDIZED CASE MANAGEMENT FOR CHRONIC PERIODONTITIS, COMPLEX.

A.—EXAMINATION.

1. Complete radiographic examination of teeth and supporting structures.
2. Vitality tests.
3. Study casts.
4. Diagnosis: I. Determination of pathological changes present;
II. Determination of etiological factors present.

B.—MAIN TREATMENT.

1. Scaling of enamel surfaces.
2. Extraction of hopelessly diseased teeth.
3. Equilibration of occlusion (the restoration of physiological occlusion through operative procedures).
4. Instruction of patient in oral hygiene and gingival stimulation.
5. Treatment of infected dentine.
6. Curettement of periodontal pockets.
7. Restorations (frequently restorations are indicated as step 4 but when left until step 7 the occlusion must be looked into again).

C.—AFTER CARE.

1. Further instruction of patient in oral hygiene.
2. Instrumentation until control of oral hygiene has been established by the patient (frequently, following curetting, a whitish semi-calcified material is precipitated at the gingival margins of the curetted pockets. This may be removed without disturbing the gingival circulation by gentle use of curettes, the stimulation itself being of value in the production of tone).

3. Oral prophylaxis at lengthened intervals.

(To be continued.)

R.C.D.S. and University Relations



MEMBERS of the Royal College of Dental Surgeons of Ontario are urged to return promptly, to the Secretary in the envelope provided, the Ballot Paper recently forwarded to each member regarding closer relations with the University of Toronto.

The Provincial Government has recognized that the tuition fees of dental students cannot be expected to cover the entire cost of maintaining the modern dental curriculum with its scientific requirements and

developments. The Government has expressed a willingness to make grants from time to time for dental education, just as it does to other branches of higher education, but has suggested that such grants be included from year to year in the regular Provincial University Budget. It was this situation that led to the negotiations which have resulted in a proposed plan for closer relations with the University, a copy of which was forwarded to the members of the College for their consideration.

Every member is urged to mark his ballot and forward it without delay, that this next great forward step in Dentistry in Ontario may have the general concurrence of the entire profession, and that the hands of the Board of Directors may be strengthened in any further action that may be taken.

Canadian Dental Association Meeting at Halifax



SINCE we have never had the honor before of entertaining the C.D.A. "down East," perhaps a little information about the place where the next meeting is to be held, may not be out of place even at this early date.

The buildings where it is proposed to hold the main part of the meeting are what are known as the Studley Group of Dalhousie University. These buildings contain ample space to house all the lectures, clinics, manufacturers' exhibits, etc., for a large meeting and all within a very short distance of one another. Last summer at a Dalhousie Reunion a larger number were present than will likely register for the meeting of the C.D.A., and the gymnasium floor was fitted up as a cafeteria so that delegates would not have to travel any distance for meals. Not far away from these buildings are located the Medical and Dental Buildings and Hospitals, so that they may be conveniently used for any purpose for which they may be required during the convention. One building of particular interest in the latter group is the new Public Health Clinic which has lately been opened. Here dental clinics are held under the same arrangements as all other medical clinics and the close connection between the oral cavity and the system as a whole is emphasized. It should prove of particular interest to all who are interested in the wider field of dentistry.

Then proceeding a short distance in the opposite direction one comes to the two University Residences, where it is proposed to put up as many as possible. One of these, the woman's residence, has just been completed at a cost of over \$300,000. Both are situated very close to

the famous Northwest Arm, and there are few more delightful spots in summer than the Northwest Arm.

In a later number we will tell you more about the outside attractions. But to relieve the suspense of not a few of our members, we will just whisper at the present time that there are splendid golf courses which are quite accessible.

Dental Convention at Winnipeg, May 12th-15th, 1925

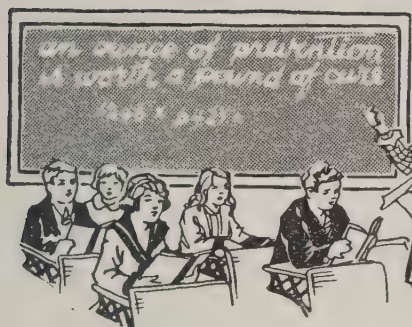
W. W. WRIGHT, D.D.S., WINNIPEG. ✓

IF concentrated, continuous effort will produce a real worthwhile convention, then there's going to be one in Winnipeg next May. The committee is enthusiastic and meets one evening almost weekly, reporting progress and discussing plans. Financial worry is conspicuous by its absence, since the Manitoba Dental Association became a partner to the convention and put aside \$1,000.00 to be used, if necessary, for the convention.

In addition to the two great headliners, Drs. W. A. Price and H. A. Maves, already announced, other prominent clinicians will be on the programme. Dr. Price will use his famous pictures of the blood stream, and one of his lectures will deal with the newer aspects of oral infection in relation to health. "What we as successful dentists owe our patients," one of Dr. Maves' lectures, should certainly be interesting. We all could talk about "What the patients owe us," but we have something to learn on the other side of the question.

Exhibitors and laboratory men have already signified their intention of being present. Invitations are being extended through the state organizations to the dentists of our neighboring states to the south—Minnesota and North Dakota.

The Fort Garry Hotel has been chosen as headquarters, and generous convention accommodation is already reserved on the seventh floor. Dentists as far as Calgary and Edmonton on the West, and Port Arthur in the East, have expressed their interest, and a good attendance from outside points seems assured. Certainly no effort is being spared to make it worth while for any dentist to come a long distance to attend.



School Dentistry

This Department is Edited by
EDMUND A. GRANT, D.D.S.

Director of Dental Services—Department of
Public Health, City Hall, Toronto



We are anxious to receive for publication in this Department reports of work carried on in School Dental Centres anywhere in Canada. Papers on any phase of Pediodontia would also be welcome.—E.A.G.



ANNUAL REPORT OF DENTAL SERVICE, LONDON PUBLIC SCHOOLS, 1924.

E. W. FULLER, D.D.S., CHIEF DENTAL OFFICER. ✓



HE following is a resume of the Dental Department of the London Public Schools, and work accomplished during 1924.

London Public Schools had an average enrolment of 7,634 during 1924.

The Dental Staff consists of the following officers: Dr. E. W. Fuller, Chief; Drs. S. A. Moore, J. F. Giffen, J. F. M. Kennedy, and H. Windrim, assistants, all on half-time service.

Four Clinics are maintained at strategic points within the city, with the idea of making it as easy as possible for the children to reach them. They are equipped with splendid outfits, in pearl-grey finish. The best of materials are used at all times.

It is the aim of the department to do the very best work possible at all times, also to do the greatest good for the greatest number, and to put the mouth of every child we work for in a healthy condition, if within our power; in the report which follows it will be seen that nearly as many cases were completed as begun. We have two reasons for this, namely, we think it loss of time to do part of the work in a child's mouth and leave part undone and the mouth in a septic condition; also if all the work is completed and a system of following-up is carried on, it takes much less time to care for the child later and keep the mouth in a good state.

During the year (September) one new Clinic was opened, with Dr. J. F. M. Kennedy appointed to take charge. One member of the staff found it necessary to resign, and Dr. H. Windrim was appointed in his place.

TABULATION OF WORK DONE AT DIFFERENT CLINICS.

	Clinics at—Aberdeen. Riverview. Lorne. Trafalgar.				Total.
Treatments—					
Pulp	112	18	9	0	139
Root	22	105	9	3	139
Prophylactic	620	466	457	249	1,792
Fillings—					
Amalgam	1,506	1,431	855	440	4,132
Cement	233	433	247	66	979
Extractions—					
Permanent Teeth	80	42	84	12	218
Deciduous Teeth	1,051	823	604	135	2,713
Miscellaneous Operations—					
	234	394	269	298	1,195
Total operations	3,858	3,712	2,534	1,203	11,307
Cases Treated—					
New	616	682	478	281	2,057
Completed	648	607	419	271	1,945

In reference to the sixth-year molar, 1,776 were vital filled, 7 were devitalized and filled and 173 extracted; from this it will be seen that we rarely believe in devitalizing sixth-year molars in our clinics. Attention is called to the comparatively small number extracted; the number decreases each year, 201 being extracted during 1923. 6,487 children were examined, 3,909 or 59 per cent. of them were found to have dental defects, ranging from very minor defects to those more or less grave; this was 3 per cent. better than in 1923. Notices were sent to parents notifying them of all defects and asking them to take their child to their family dentist and have defects remedied. It was noticed that more parents than previously acted on this advice; this is as it should be, and it is the intention of the department to stress this more during the year 1925. It was found to be very difficult to get figures showing the exact number that did receive treatment from a family dentist.

The total cost of the service for the year, which is paid for directly by the Board of Education, was: Salaries, \$5,418.95; supplies, \$640.27, and new equipment, \$935.89.

Allowing 10 per cent. depreciation on equipments, the average cost of each child treated at the clinics was \$2.23. The average cost of each operation was 43 cents.

The cost of direction, instruction in Oral Hygiene and survey examinations was \$1,600.

It is the writer's wish here to express his gratitude for the help, co-operation and harmony, that has existed between the Board of Education, inspectors and teaching staff, school nurses, and this department.

E. W. FULLER,

Chief Dental Officer.

EASTER CONFERENCE OF SCHOOL DENTAL OFFICERS.



SCHOOL Dental Officers throughout Ontario are cordially invited to attend the Sessions of the School Health and Physical Education section during the annual convention of the Ontario Educational Association, held April 13th to 15th, in Toronto.

The Section has five organized subsections, *i.e.*, Medical, Nurses', Dental, Psychiatric and Physical Education, which meet for consideration of the particular sphere of each service and combine for co-operation and correlation. At all sessions time is allowed for discussion to discover local contributions and experiences in these phases.

The Section is submitting in its programme the best procurable authorities from outside sources, as well as local leaders in these lines.

Registration with this Section will secure you printed editions of the minutes and papers of the whole O. E. A. programme of 1925. Registration fee, \$1.00.

Some outstanding workers in Public Health Education from the other side will be present, and it is an excellent opportunity for dentists to meet Medical Officers and Nurses, and hear discussed subjects of general health education.

Dr. S. A. Moore, London, Ontario, will present a paper on "Some Results of the Abnormal Loss of the Deciduous Teeth," before the general sessions, and a special session of School Dental Officers will be held on April 14th, at 3 p.m., in the R.C.D.S. building.

PROGRAMME FOR DENTAL SESSION:

Dr. E. W. Fuller, Chairman.

Dr. Fred J. Conboy, Address—

"Activities of the Dental Department of the Ministry of Health."

Dr. Harold Keith Box—

"Demonstration Clinic Showing the Premonitory Indications of Periodontitis to be found in the Mouths of Children."

Dr. R. M. Box—

"A Standardized Method of Brushing Children's Teeth."

Dr. E. A. Grant will open a discussion upon the subject—

"Should free dental service for children be made available to all classes in the community?"

Further details of programme can be secured by writing Dr. E. W. Fuller, 214 Dundas St., London, Chairman of the Dental Section.



British Columbia—Ray H. Wilson, D.D.S.

736 Granville Street, Vancouver.

Alberta—JOHN W. CLAY, D.D.S.

914 Herald Bldg., Calgary.

Saskatchewan—C. W. PARKER, D.D.S.

Imperial Bank Bldg., Regina.

Maritime Provinces—J. STANLEY BAGNALL, D.D.S., 34 Larch St., Halifax, N.S.

Manitoba—W. W. WRIGHT, D.D.S.

767 Warsaw Ave., Winnipeg.

Ontario—LIBUT.-COL. W. G. THOMPSON,

28 King St. West, Hamilton.

Quebec—ARCHIE N. JENKS, D.D.S.

Medical Arts Bldg., Montreal, Que.



MARITIME PROVINCES.



THE regular meeting of the Halifax Dental Society for February was held on the 17th. Dr. G. K. Thomson, President of the C.D.A., outlined the progress made up to the present in preparation for the 1926 meeting.

The programme for the evening was a group discussion on Pyorrhea. Dr. C. H. Chudleigh opened the discussion with a paper on the History and Some of the Methods of Treatment. He was followed by Dr. H. S. Crosby who stressed the importance of Traumatic Occlusion. Then by Dr. J. H. Rice, who dealt particularly with methods of treatment. He described and showed a number of instruments which he had constructed himself for the removal of tartar. Also laid particular stress on the surgical removal of pockets by cutting them down their long axis.

The meeting was then thrown open to general discussion. Dr. G. K. Thomson stressed the importance of traumatic occlusion in the etiology of pyorrhea. Also thought that pockets should be eliminated. Dr. W. H. Beckwith described an interesting case which he had treated for twenty years. The patient only has contact in the molar region. The soft tissues around the molars have always been quite healthy, but there were several bad pockets in the bicuspid region. These had been scaled monthly during this period and the patient co-operated by careful mouth hygiene. The soft tissues are now in better health than ever and the teeth quite solid.

The group discussion plan has been tried out for the first time this year and has been particularly successful. Some subject of general interest chosen. Then a chairman and two others selected to handle each subject. The chairman is responsible and must arrange with the other two the part of the subject which each is to cover. Then after these three have given their talks the meeting is thrown open to general discussion.

J. S. B.

ONTARIO.



DOCTOR C. B. TAYLOR reports that at a meeting of the Elgin Dental Association of March 9th, 1925, a resolution was passed unanimously endorsing "The placing of the teaching of Dentistry as a faculty in Toronto University as set forth by circular letter sent out by R.C.D.S. dated February, 1925."

A paper entitled "Truth and Poetry in connection with Dental Radiograms," was read followed by lengthy discussion. This paper was prepared for the programme in connection with the opening of The Deaner Institute, Kansas City.

* * *

ALBERTA.



WE hear that our old friend Dr. Harry Thomson will be in Calgary shortly, in the interests of the Canadian Dental Hygiene Council. Arrangements are being made by Dr. C. B. Johnson, who has the Oral Hygiene work of this district in charge, to keep Doctor Thomson busy while in the city. Considering the plans talked of for him to address service clubs, radio broadcast, talk to normal students and school children, as well as other groups of citizens, it is expected Dr. Johnson will succeed in his effort.

The Calgary Dental Society will also have a meeting to hear Dr. Thomson. Invitations will be sent to all dentists in the district. Doctor Thomson is an eloquent speaker and has a message, so that those who can arrange to be in Calgary for the meeting should be sure to attend.

* * *

Four new members have been accepted recently by the Calgary Dental Society: Dr. R. F. Denholm, Dr. H. D. Duncan, Dr. R. R. McIntyre, Dr. Jas. Zimmerman. All have commenced practice in Calgary.

* * *

The Edmonton Dental Society is to be commended on a new departure in its development of study work among its members.

A course of ten lectures on the subject of General Pathology is being given by Dr. J. Ower of the staff of the University of Alberta. Twenty-five of the forty odd members of the society have registered for the class.

At the last regular meeting of the society, Dr. Hamilton read an interesting paper on "Acute Gingivitis." A full discussion by the members followed.

* * *

The study club on Prosthetic Dentistry of the Calgary Dental Society, made an interesting report through Dr. V. H. Macaulay of their last six weeks' work, at the February meeting of the Society.—J. W. C.

BROADCASTING STATION



This Department is used for the "broadcasting" of Messages from outstanding Canadian Citizens to the Dental Profession. We feel quite confident that ORAL HEALTH readers will be glad to "tune-in" on this "Station," with the full assurance of receiving a Worthwhile Message each issue.



Get Them Young

A Personal Message to the Dental Profession from Mr. William Mullis, Editor of "The Spectator," Hamilton, Ontario.



HAVE been invited "to write a personal message to the dental profession," and I would that I could say something to help bring about the "furtherance of community, social and educational interests" that my good friend the Editor speaks of. I am afraid that I have not the power of speech to do it. What I can do, however, is to express my sympathy with the work, the objectives and the ideals of the dental profession and all that such implies.

Old Walt Whitman said that "whoever walks a furlong without sympathy walks to his own funeral, dressed in his shroud." I am afraid there are many self-funeral walkers in the world to-day. Nothing worth while can be accomplished without sympathy, for back of sympathy lies love of service.

In a very humble and circumscribed way I have at intervals published educational articles upon the work that is being done by your profession. I am especially interested in the department which affects the oral health of the young. In no way can the science of dentition be more usefully and practically applied in our community life than among our children. Your researches have demonstrated the grave menace to health that arises from teeth that are diseased, imperfect or improperly cared for.

While something has been done in the formation of free dental clinics, and the appointing of nurses in the schools to report on the oral conditions of the pupils, this latter is but a superficial and feeble way in which to handle so important a subject. Our Boards of Health and of Education engage qualified practitioners for the medical work

required, and the same standard should be maintained with regard to odontology.

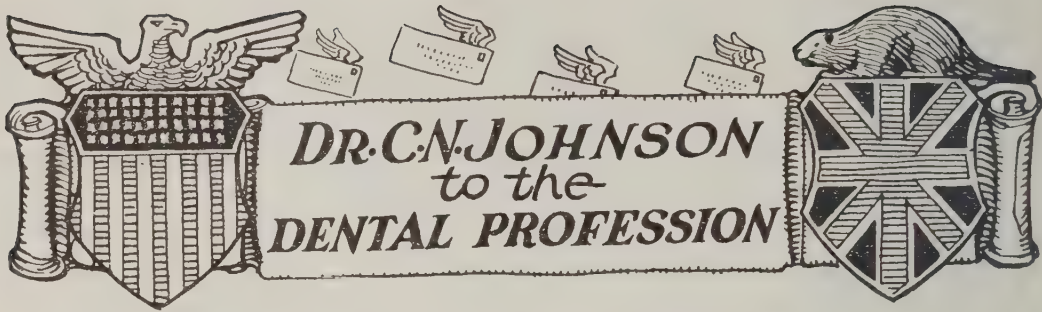
This has been called a day of fads; some foolish and crazy, some harmless, but some necessary and useful. If dental supervision were introduced and maintained in a thorough and capable way, although it might be labelled a fad, it would undoubtedly come under the last of the qualifications that I have suggested. It is false economy for those who have in trust the education of our children to protest on the ground of expense. An analysis of the spending departments in our educational system might show where economies could be practised without sacrifice, that would remove entirely the objection to increasing the appropriation for enlarged and improved dental supervision.

I have no intention, however, of trying to scold anybody. If this most desirable objective has not been attained, it is perhaps because those of us concerned—the profession, the press, and our educational and health departments—have not reached the maximum of effort. In a multitude of counsellors there is always safety, and appeals such as have elicited this message frequently result in opinions and suggestions for the betterment of all, and may evoke something practical, leading to tangible and successful results. There is an old Eastern saying to the effect that behind *will* stands *desire*. In order to accomplish anything, we must first have the desire, and then the will and energy to bring it into fruition. With the desire thoroughly active, *the will to do* must be necessarily effective.

Start on the child; give him not only the professional immediate help he is in need of, but instruct him in the care and value of his teeth. The knowledge is of more value than the solving of a problem in Euclid, or a knowledge of the social customs of the late lamented Lemurians.

“As the twig is bent, the tree’s inclined.” Get your youngster early, and you have him fixed with a habit that will pay him big interest all his life.

TO PRODUCE THE BEST RESULTS, AS FAR AS SURFACES ARE CONCERNED, WHEN CASTING INLAYS.—With any of the good known investments (or home made), before coating the wax model, take a small quantity of the thin mix and place it in the palm of the left hand. Briskly rub it with the second finger of the right hand. This action will immediately reduce the coarseness to a minimum. Apply with a fine brush from which any moisture and air have been removed by squeezing. The remainder of the mix can then be poured about the wax model, taking care not to imprison air. Pour only on one side of the inlay.—*Dental Science Journal of Australia.*



The Baptism of Tim



IM is a dog—one of the blue-blooded variety, as you shall see. He is a German shepherd dog, commonly known as a police dog because trained to do police duty. Tim is a queer name for a dog of that heritage, and in all probability he acquired the name by accident—quite likely his name was Kim, and somebody mistook it for Tim, and the name stuck. His owner is a shop-keeper of some kind, one flight up, and he lives in the rear. One morning early two men entered the place and said they were inspectors. The government is inspecting everything these days, and so the shop-keeper was not surprised. He came out from behind the counter to see what they wanted, and was instantly made an inspector himself—he was compelled to inspect the muzzles of two revolvers. Realizing that he was being held up he let one insistent yell out of him, “*Tim!*” Suddenly a dark gray streak shot past him and one of the robbers was grasped by the wrist and the gun shaken from his hand. The other robber put a bullet through Tim, which shook the dog momentarily and the man jerked his wrist loose. The two men turned and ran down the stairs. The dog pulled himself together and started after them. By the time Tim’s owner reached the street an automobile was driving off with three men in it—the third having been waiting in the car with the engine running—and Tim was chasing them, leaving a trail of blood after him. They turned a corner and were out of sight, and that was the last Tim’s owner ever expected to see him.

The story got in the afternoon papers and that night the shop-keeper received a telephone message that a wounded dog was at a certain place in the city—eleven whole blocks from where he lived. He hurried to the spot and rushed Tim to the hospital. It was found that the bullet had gone through the dog, entering one side and coming out the other. In fact it had also passed through a partition after going through Tim, and had been found by the shop-keeper. It was a 45 calibre. It did not look as if there was much chance of saving a dog after an experience like that, but the veterinary surgeon said: “If infection doesn’t set in we

may pull him through yet. The bullet didn't hit a vital spot. If it had been an inch either way he would have been killed almost instantly."

Fortune favored the brave in this instance—infection did not set in and Tim recovered, much to the delight of his owner and of the public who had become interested in the case. It might as well be announced that any one wanting to buy this dog will save themselves needless trouble by remaining away from the shop-keeper. Tim is not for sale. He has had his baptism of fire, and has come out scarred but triumphant, like all good soldiers should. It is marvellous how well he knew just what to do, and how perfectly he did it. He had never encountered hold-up men before, but he had been *trained* to do police service, and he went to his duty instantly, unfalteringly, and unerringly. In his make-up there was no such thing as fear. Numbers did not appall him, and even the report of a revolver and the sting of a piercing bullet failed to make him hesitate for one moment. He was protecting his master against harm, and his own safety was a matter of sublime indifference to him. And think of his pluck and endurance! With a hole through him from a 45 calibre revolver, chasing that automobile for eleven city blocks till nature took its toll and he fell exhausted from loss of blood. Nothing can daunt a spirit like that—nothing can exceed that kind of devotion. If such a thing as immortality exists among animals, then Tim is immortal. One brave act like that is worthy of an epic of infinity—it ranks with Horatius at the bridge, the charge of the light brigade, or Hobson at Santiago.

What a sublime lesson Tim gave to humanity in that one act. How little he cared for himself, and how very much he cared for his master. Unselfish devotion to the welfare of others is the thing that is to regenerate the world. To see your duty and to do it bravely, unflinchingly and without hesitation is the acme of sanctified service. Tim is the hero of the hour wherever he is known, and yet he goes modestly and unobtrusively about his daily routine precisely as if nothing had happened. Which is more than can be said of some human heroes.

C. H. Johnson

Congratulations, Dr. Dubeau !

Dr. E. Dubeau, Dean of Faculty of Dentistry, University of Montreal, has been made a Knight of the Legion of Honor of France.

DIRECTORY of DENTAL MEETINGS & OFFICIAL ANNOUNCEMENTS

*Dental Associations are Invited to use this Department Freely for
Announcements of Meetings*



DENTAL CONVENTION AT WINNIPEG—12th to 15th May, 1925.

*EASTERN ONTARIO DENTAL ASSOCIATION—1925 Meeting at Stanley Island
(Cornwall). Date to be set by Executive.*

*ONTARIO DENTAL ASSOCIATION—1925 Meeting at University of Toronto, 26th to 29th
May, 1925.*

*CANADIAN DENTAL ASSOCIATION—1926 Meeting at Halifax, N.S. Date to be set by
Executive.*

*AMERICAN DENTAL ASSOCIATION—1925 Meeting at Louisville, Kentucky, 21st to 25th
September, 1925.*

*INTERNATIONAL DENTAL FEDERATION—1925 Meeting at Geneva, Switzerland, 2nd
to 6th August, 1925.*



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*Oral Health will be Pleased to Receive Additions or Corrections that Directory
of Names May be Kept as Accurate as Possible*



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Oral Health



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TORONTO, MARCH, 1925

No. 3



EDITORIAL



Dentistry's Challenge to Her Graduates

IS the average young graduate in dentistry making a sufficient or adequate personal contribution to the science, practice and literature of his chosen profession? There are, of course, notable exceptions, but taking the profession generally, we seriously doubt if the younger graduates, as a group, are filling the place to be expected of them. A perusal of the programmes of dental conventions, and of the pages of the dental magazines, shows that much the greater portion of the load is being carried by those who graduated over ten years ago.

Almost every practitioner, during the first few years of practice, has many hours of free time in which he might engage in study and experimentation. How many graduates of from five to ten years are making any serious attempt at an original solution of the problems they meet in

practice? These are vital queries and ones that are closely related to the present progress and future development of the dental profession.

One searches about for explanation of these conditions, and naturally turns to the Dental College course. Are young graduates taught in such a way as to carry through technique procedures like so many "stunts"? Have they been reared in an academic atmosphere where imagination and individuality are lacking? Do they accept the "approved" methods as being so perfect as not to be questioned or to be capable of improvement? Teachers tell the classes about the *known* things in dentistry. It is enlightening and a stimulus to the students when a teacher recounts the *unknown* things in his subject. The duty of the teacher includes instruction in the unknown as well as the teaching of the known; otherwise the spirit of research remains dormant.

Every young dentist should try to visualize dentistry as it should be practised to-day or as it might be practised twenty years hence. Many of our present methods of practice will doubtless find their way into the discard of to-morrow. There is an obligation resting upon every member of the Dental Profession to make his contribution, but the greater onus rests upon the shoulders of the younger men, who have had the advantages of a more scientific training and who have at their disposal the requisite time and energy.

The younger members of the Profession are justified in looking to the older men to frankly state the more pressing of the unsolved problems of dental practice. What are the things in the actual practice of dentistry we should positively know but are not quite sure of? We pass along this challenge to the older practitioners whose wide experience has taught them the need for scientific information in certain definite phases of practice. ORAL HEALTH will be glad to publish suggestions, and these will be of inestimable value to the Canadian Dental Research Foundation and a stimulus to younger members of the Profession who are ready and anxious to make a contribution to the development of dental science. The younger graduates in dentistry are not lacking in the spirit of adventure nor in the will to serve. They do need, however, the counsel, advice and encouragement of those of more mature thought and wider experience to give direction to their efforts.

Correspondence

To the Editor of ORAL HEALTH.

March, 1925.



IN the preliminary programme of the Ontario Dental Convention, to be held in May of this year, it is announced that clinics in the diagnosis and treatment of periodontal disease will constitute an outstanding feature of the meeting. With the association of the names of such prominent periodontists as Drs.

Box, Stillman and McCall, it is a safe prediction that the subject of traumatic occlusion will be thoroughly presented. The evidence that traumatic occlusion is a major etiological factor in the production of periodontal disease touches operative dentistry in a vital spot, and carries the whole subject of periodontology into the very heart of reconstructive dentistry. In other words, the knowledge that abnormal distribution of stress exerted on teeth during their use constitutes one of the major causes of disease in the periodontal tissue, is a matter of the greatest significance to general dentistry and involves its very fundamentals.

Because of the publication in the *Globe* of March 11th, 1924, of the following statement, a certain apprehension has been established in the minds of some dental practitioners and the general public, and I have received so many enquiries, that I feel that the profession at large should know the facts:

“Toronto *Globe*, March 11th, 1924.

“President of the Toronto Branch of the International Research Association, Dr. McDonagh, himself has made considerable study of disease conditions of the teeth. Although he said the statement could not be made with any degree of certainty until many more cases had been experimented with, his researches had led him to believe that a very large proportion of teeth which had been ground, contained micro-organisms. In other words, the removal of the protective covering of the dentine of the tooth allowed the disease carrying micro-organisms to penetrate into the living pulp of the tooth and thence to the blood, producing rheumatism or others ills. This fear had been strengthened by the results of Drs. Hartzell and Henrici, who had discovered micro-organisms in 45 per cent. of teeth which had been ground.”

Finding nothing in dental literature to corroborate this statement regarding the findings of Drs. Hartzell and Henrici, I wrote Dr. Hartzell for his researches in regard to infections of the dental pulp in teeth ground for traumatic occlusion.

Dr. Hartzell replied at once and informed me that the reference in the press regarding his findings is not correct, and further that he has no recollection of having made any statement in regard to grinding teeth in relation to the infection of the pulp.

In the interests of science and in fairness to Dr. Hartzell, and further to reassure those practitioners to whom the correction of traumatic occlusion is a fundamental part of their treatment of periodontal disease, and to inform others who are apprehensive of the results of so-called “grinding,” I feel that the above information should be forthcoming at this time.

W. G. TRELFORD.

The Upward Climb

EVEN a *fish* has to keep
moving its fins or it would
sink to the bottom.

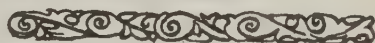
—W.S.



W. D. N. MOORE, D.D.S.,
Chicago.

ORAL HEALTH

*A JOURNAL THAT STANDS FOR THE OUNCE OF
PREVENTION AS WELL AS THE POUND OF CURE*



Vol. 15

TORONTO, APRIL, 1925

No. 4

W. D. N. Moore : A Personal Sketch

BILLY MOORE has made a worth-while contribution to Dentistry, embodying as he does such a spirit of exactness that he is satisfied with nothing less than the most perfect work possible. Indeed, it is recorded that during his college days his classmates were occasionally "peevish," and his best friends at times became impatient, because they thought him *too* particular. "Billy" would completely remake a piece of technique that looked perfectly good to his friends, because of some slight defect that only his eye would detect.

Dr. C. N. Johnson, in referring to Dr. Moore, once said: "You couldn't chloroform Billy Moore and make him do a poor piece of work; but if, in a moment of unconsciousness, he did turn out a poor piece, he would, immediately on awakening, tear the work to pieces and do it all over again. There is in his make-up no compromise when it comes to perfection of results in any of his technical procedures—the best is never quite good enough for him. That is the keynote of the man as I have observed him for many years."

Dr. Moore is a Canadian, having been born near Georgetown, where he attended High School and taught school for three years before entering upon the study of Dentistry. He graduated from the Chicago College of Dental Surgery, 1902, and from the Royal College of Dental Surgeons of Ontario, 1903. For thirteen years after graduation he was an instructor in Operative Dentistry in the Chicago College, and subsequently has given his entire time to private practice.

Dr. Moore was present at the last meeting of the Hamilton Academy of Dentistry, and gave a most interesting clinic in the afternoon and an address at the evening session.

British Authorities Pay Tribute to the Work of Harold K. Box

Copy of Editorial appearing in the British Medical Journal, THE LANCET, of January 10th, 1925, under the caption, "The Pathology of Pyorrhoea."

* * *



SOME time ago an announcement appeared in the lay Press to the effect that Dr. Harold Box, of Toronto, had discovered some new facts in the etiology and pathology of pyorrhoea which were likely to revolutionize our conceptions of this disease. His work is now available in the latest bulletin* of the Canadian Dental Research Foundation.

While it may not merit the highly colored eulogies in the lay Press, it is of considerable importance and sheds valuable light on the pathology of periodontitis and pyorrhoea. In this country the view which has received most support is that pyorrhoea commences as an inflammation of the gum margin (gingivitis) which gradually extends down the roots of the teeth and attacks the periodontal membrane. This latter becomes stripped from the cement, leading to the formation of a pocket lined with infected granulation tissue. Concurrently with these changes there is absorption of alveolar bone and usually at some stage a discharge of pus. The bony support of the teeth becomes gradually destroyed and the teeth become progressively loosened and may eventually fall out. According to this view, the lesion is always an open one, a progressive ulceration from the surface of the gum extending into the periodontal membrane. Opinions differ as to the etiology, but there has been much support for the views of J. F. Colyer and J. G. Turner that the essential factor is the stagnation of food, which leads to bacterial invasion of the tissues. At the same time there has been a considerable amount of speculation as to the possibility of some general cause which initiates or, at least, predisposes to these local changes. Dr. Box has investigated exhaustively the patho-histology of the gum and periodontal membrane and his account differs materially from current conceptions. He gives an elaborate classification of the various types of gingivitis, recognizing no fewer than thirteen forms, a refinement which is, perhaps, excessive and confuses rather than helps. He notes that in subacute gingivitis a typical feature is the proliferation of the epithelium which normally lines the trough between the free edge of the gum and the neck of the tooth. This epithelium tends to invade the periodontal membrane and

*Studies in Periodontal Pathology, Harold Keith Box, Bulletin No. 7, Canadian Dental Research Foundation, May, 1924.

plays an important part in causing a separation of the membrane from the root.

Perhaps the most striking feature of Dr. Box's work is his description of a form of periodontitis which he terms "rarefying pericementitis fibrosa," and which he regards as a pathological entity which has hitherto escaped notice. This is a chronic and progressive lesion of the periodontal membrane which leads to rarefaction of the alveolar bone. It manifests itself by the formation of a new tissue in the periodontal membrane which changes the normal arrangement of this tissue and gradually replaces the normal bone. It commences by a proliferation of the endothelial cells lining the blood-vessels which may occlude their lumen. Endothelial cells appear around the vessels accompanied by occasional lymphocytes, plasma cells, and fibroblasts. Dr. Box regards the process as a low grade of inflammation, but does not think that the new tissue should be looked upon as typical granulation tissue, for there is no characteristic development of new capillaries. This tissue appears as irregular nodular masses in the periodontal membrane which destroy the regular arrangement of fibres and lead to a loosening of the tooth. A concomitant rarefaction of bone is set up by extension of the new tissue which stimulates the activity of the osteoclasts. Howship's lacunæ are formed and the fibrous tissue creeps into the recesses and often extends in finger-like formation along the blood-vessels, thus causing an internal rarefaction of bone. A further phase of the process is the replacement of bone by an osteoid tissue, especially on the surface and in the Haversian canals. Dr. Box notes as significant that the superficial changes in the gum may be very slight and may bear no proportionate relation to the changes occurring in the periodontal membrane. He considers that rarefying pericementitis fibrosa occurs typically in teeth which over-function through an abnormal occlusal strain due to some deviation from their normal position in the arch. He notes, too, a striking resemblance between this process and osteitis fibrosa, and suggests that rarefying pericementitis fibrosa must be studied in parallel relation with similar changes in other bones.

Dr. Box uses the term periodontitis in a somewhat different sense from most authorities. Instead of considering it as primarily an inflammation of the periodontal membrane, he uses it to comprise an inflammation of the gingivæ, periodontal membrane, and alveolar bone. These three structures are the tissue components of the supporting structures of the teeth. He employs the term "periodontium" to include all three. He excludes alveolar abscess and granulomata from the category of periodontitis because in these conditions the gingivæ are not involved. There is an elaborate classification of the various forms of periodontitis recognized by Dr. Box. The condition which is somewhat loosely called

"pyorrhœa" is, according to Dr. Box, a complex one, and he recognizes several types. There is a simple form in which the lesion commences as an ulceration of the gum margin which extends inwards and gradually destroys the periodontal membrane and bone and is often characterized by the presence of pus. This process is centripetal and corresponds to the account of the pathology of pyorrhœa as given typically by J. G. Turner and J. F. Colyer. The second class of periodontitis which Dr. Box calls "chronic complex periodontitis," is quite different. It is produced by the coalescence of two distinct lesions, rarefying pericementitis fibrosa and infective periodontitis. The latter condition consists of three phases: chronic gingivitis, chronic pericementitis, and infective osteitis (rarefying and productive). These appear in this order. According to Dr. Box, the majority of the cases of what is usually called pyorrhœa belong to the category of chronic complex periodontitis.

An interesting feature of the chronic gingivitis as described by Dr. Box is the part played by the epithelium in the formation of a pocket. The epithelium which normally lines the gingival trough grows into the periodontal membrane and separates the fibres which are attached to the cement. He finds this to be a fairly constant feature, and notes that even when the pocket has extended to a considerable depth so that the cement is freely denuded, the surface of the soft tissue is usually lined by epithelium, and that surprisingly little ulcerated tissue is present. He considers that this indicates a defensive power of the cells which tends to reduce the lesion to a non-ulcerative type of inflammation. He admits that in some cases the fibres of the periodontal membrane may be destroyed by ulceration, but regards this as uncommon. Dr. Box considers that this has an important bearing on treatment and that theories regarding treatment should be based on the assumption that in practically all pockets the detached tissue sooner or later becomes covered with epithelium. The changes in the bone (infective osteitis), as described by Dr. Box, do not present any features different from those described by many other writers. While the classification of Dr. Box helps to emphasize the different aspects of the lesions in pyorrhœa, it appears to be needlessly complex and over-elaborated.

Reduced to essentials, Dr. Box's conception of the pathology of pyorrhœa seems to be as follows: A few cases commence as a simple ulceration at the gum margin which extends into the periodontal membrane and strips it from the cement. By an extension of the ulcerative process the pocket thus formed gradually becomes deeper, and at the same time the alveolar bone undergoes a progressive absorption. In the majority of cases, however, the process is quite different. The disease is initiated by a regressive change in the periodontal membrane which is not preceded by ulceration of the gum margin. This change is charac-

terized by the formation of fibrous tissue which replaces the orderly arrangement of the fibres in the membrane. The new tissue invades the bone and replaces it to a varying extent, thus leading to a loosening of the affected teeth. This condition (rarefying pericementitis fibrosa) must be regarded as the essential agency in bringing about the formation of a pocket with denudation of the cement, destruction of alveolar bone, and formation of pus—the condition which, clinically, we regard as pyorrhœa. While infection plays a part in the later stages in which ulceration occurs, Dr. Box does not consider that bacterial invasion is the primary factor. In his view the first cause is an over-functioning of the teeth due to a deviation from their normal arrangement which so strains the periodontal membrane as to initiate the development of rarefying pericementitis fibrosa.

It has usually been held that, when once the cement was denuded, reattachment of the periodontal membrane could not occur. From time to time statements have been made that reunion has occurred in treated cases, but the evidence was clinical and not very convincing. Dr. Box believes that it does occur and produces histological evidence to show it. If this be so, it is a very important point and confirmation from other workers would be welcome. In face of Dr. Box's micro-photographs it is difficult to deny the possibility that this may occur, though under what conditions and to what extent is at present doubtful. Dr. Box notes that the new attachment differs from normal. The fibres run parallel with the surface of the cement instead of transverse, and it is evident that such a reattachment does not represent a complete anatomical and functional restitutio ad integrum, but only a limited though still valuable recovery.

Such is a brief outline of Dr. Box's views. In many respects they are novel and arresting, and are certain to arouse much interest among dentists. They certainly shed considerable light on the pathology of this important disease and, if confirmed by others, should give encouragement to the conservative treatment of pyorrhœa. A feature of Dr. Box's brochure, which it would be ungrateful to pass over without mention, is the large number of very beautiful micro-photographs both of normal and abnormal conditions of the periodontal tissues with which the monograph is lavishly illustrated. It is certainly the completest study of the "periodontium" which has yet been made, and has laid all workers in dental anatomy and pathology under a debt to Dr. Box and to the Canadian Dental Research Foundation which has made this valuable publication possible.—*Editorial in The Lancet.*

To go without—and look as if you liked it—is one of the first things to be learned in this world.

Periodontology

ANDREW J. McDONAGH, L.D.S., TORONTO.



ANY years before the life span of Dr. Riggs, physicians and surgeons studied the condition which we now call periodontoclasia and tried to treat it, but to Dr. Riggs must be given the distinction of having instituted the most successful mode of treatment which was employed up to that time, and, in fact, some of our modern operators are following quite closely the method advocated by Dr. Riggs. Others are using a much less radical mode of procedure and apparently, in the majority of cases, succeeding,—the frequency of success depending to a great extent on the ability of the operator. One thing, however, seems quite clear in the light of our experience, and that is if the operator is skilful, whether he believes in cutting away all the gingiva and the crest of the alveolus, or just clearing out with suitable instruments the pus discharging pockets or depending principally on rectifying the occlusion, that operator does have as a result some success regardless of the etiology of the disease. Nevertheless it does seem to be true that a comprehensive understanding of the etiology would greatly assist all of the different operators in their efforts to combat the disease, certainly to prevent a recurrence. Therefore, researches in food metabolism as published by Dr. Howe, Mrs. Mellanby, Dr. Clarence Grieves and others should be studied by every periodontist. Take for instance Dr. Howe's experience with his animals, published in the *National Dental Journal* of Dec., 1924. These experiments on animals show that Dr. Howe has been able by feeding his animals a scorbutic diet, and denying them sunshine, to cause the teeth to loosen and the periodontal supports to be destroyed to the extent of the entire loss of the teeth. In considering these experiments we must note the fact that the life cycle of the animals experimented on—guinea pigs, rabbits, rats and so forth—is much shorter than the life cycle of man and the deductions on account of this fact must be tempered,—that is to say, pathological conditions can be made to appear in a shorter time than in the human, but at the same time results should be considered very carefully as investigation has shown that comparison can be readily made.

In man the disease of scurvy which is the result of improper feeding will in a fairly short time cause the destruction of the periodontal tissues and the loss of the teeth, but this drastic rapid action is not what we are in the habit of studying under the term of periodontoclasia, but the conditions accompanying scurvy in its extreme form are not necessary to indicate a scorbutic condition. Dr. Hess has asserted in an article on this subject (*The Journal of the American Medical Association*, Vol.

LXV.) that one of the outstanding symptoms of scurvy was, "that the blood vessels were broken in the gingiva resulting in bleeding of the gums, also resulting in the possibility of infection taking place in that locality." Taking for granted that under civilized conditions a scorbutic diet is often the diet of many families, particularly in the winter time, one can readily see that a low form of scurvy, resulting in the breaking down of the blood vessels in the gingiva, or possibly the pericementum, is very likely to occur and that condition is one that would not be rapid and spectacular like the scorbutic condition of the monkeys and guinea pigs in Dr. Howe's experiments or even man, when the conditions are favorable.

Some years ago Dr. Eugene Talbot published a book on "Interstitial Gingivitis." In this book, which was the result of a great deal of research and investigation, we were taught that periodontoclasia was a local expression of a systemic disorder and modern investigators seem to prove that in certain phases of dental periclasia Dr. Talbot was right, at least Dr. Talbot had observed something which the more superficial investigators had overlooked. Overlooked perhaps because the treatment which Dr. Talbot suggested did not meet with the approval of those who had had wide experience in treating the disease and who knew that it was not necessary to resort to constitutional treatment to get results in the cases that came under their notice. Nevertheless if the diet and habits of some of our patients are not changed we have not much chance of ever getting a good permanent result from local treatment.

Recently periodontal disturbances resulting from traumatic occlusion, traumatic torque and leverage of the teeth have been very much in the limelight, not perhaps because they are new but because they have been placed before the dental profession and the public in such a striking manner that everyone has heard the promulgation of doctrines concerning them. Moreover the fact that by grinding away parts of the teeth which it is comparatively easy to do, has been heralded as an efficient and simple method of treating periodontoclasia, attracts the attention of a great mass of dentists as well as the public.

In the study of several thousand skulls in the Museum in Ottawa and Montreal, New York, Washington, Philadelphia and London, England, extending over a period of several years, the writer has been struck forcibly by the fact that races living a primitive life, such as the Esquimaux, the primitive North American Indian and the Maori, were not troubled as we are, the civilized races, with periodontoclasia. For instance take the report of Stephen B. Ritchie, B.A., D.M.D., L.D.S., who examined the skulls in Ottawa, and this report was published by the Canadian Government. In it he says, "Salivary calculus even in the oldest skulls, with one exception which will be referred to later, is

entirely absent, as is also any trace of pyorrhœa, or resorption of the alveolar margins. These latter, however, are thicker than those of civilized races and the blood supply is abundant." And this assertion might be easily made concerning the primitive North American Indians and other races except that the bone in the Esquimaux jaws is probably more powerful and contains more bone than you usually find in primitive peoples. This is in great contrast to the Indians of to-day who have adopted civilized food and habits and whose teeth and jaws are no better than, if they are as good as, their white companions. This fact was quite noticeable in the pictures of skulls in the New York Museum which were thrown on the screen at the last meeting of the Academy of Periodontology by Dr. Hirschfeld of New York.

The foregoing apparently would make it plain that there is a possibility of living a kind of life, using a kind of food and following certain habits which will insure us against suppurative periodontoclasia,—a life which will eliminate the possibility of pus pocket formation in the alveolus. In other words the primary, etiological factor of periodontoclasia is lacking when our lives conform to certain rules. Apparently nature made provision for a healthy mouth and we have not lived up to nature's laws. It is an easy matter to say that we must learn to obey nature's laws but it is very difficult if indeed practical to carry out that injunction in civilized communities. Therefore we must consider the conditions as we find them and apply our remedies accordingly, hence a minute study of the tissues involved is a necessary equipment to carry on our work.

In 1920, in a thesis entitled, "Dental Tissues," presented to the University of Toronto, in conforming with the conditions necessary for the degree of Doctor of Philosophy, Dr. Harold Keith Box made the following statement:

"In the second type (Chronic Periodontitis, Complex), the formation of the pus-pocket is a phenomenon preceded by much more complex and deeper changes than a simple gingivitis. The ideal requisites for rapid and deep pocket extension are alveolar resorption, lowered resistance in the entire pericementum, and gingivitis. Disturbance of equilibrium as manifested in excessive function or traumatic occlusion while but one etiological factor in the production of these requisites, especially in the changes in the pericementum and alveolar process is the most important."

In this thesis, photomicrographs were exhibited showing pericemental and alveolar lesions, and also the physics of occlusion, both normal and abnormal. As far as my knowledge goes, Box was the first investigator to logically connect microscopic findings in pathology with traumatic occlusion.

This presentation was the culmination of researches in periodontal pathology, beginning in 1914, which I, personally, had the privilege of following and examining. It is to be regretted that the publication

of this work in its entirety was delayed, for various reasons, and not printed until 1921 (Bulletin No. 1), 1922 (Bulletins Nos. 3 and 4), and 1924 (Bulletin No. 7) of the Canadian Dental Research Foundation. In the last Bulletin (Bulletin No. 7), which is a masterpiece in Periodontal Pathology, Box gave to these deeper lesions found in the pericementum and alveolar bone, the scientific term, Rarefying Pericementitis Fibrosa, which term was coined to portray a new viewpoint. In describing this lesion (pages 33, 36 and 59), he states:

"This is a chronic and progressive lesion of the pericementum which results in the rarefaction and destruction of alveolar bone. The process consists of the formation, in the pericementum, of a new tissue which, on the one hand, changes the normal arrangement of the pericemental structure, and, on the other, replaces the bone substance of the alveolar process. These changes in the pericementum and the alveolar bone are concomitant lesions. This new tissue subsequently assumes the form of a fibrillar connective tissue."

"In this new tissue, the reaction around the blood-vessels is a conspicuous feature. There is a proliferative change of the endothelial cells lining the blood-vessels, leading in many instances to partial or complete occlusion of the vessel lumen. Endothelial cells are to be seen, also, in the new tissue surrounding the blood-vessels, accompanied by occasional lymphocytes and plasma cells. A few fibroblasts are present. In other words, there is manifested a chronic and progressive tissue response wherein new fibroblasts make their appearance during the progress of a very low grade of chronic inflammation (Figs. 45, 46, 47, 48, 49).

"The lesions of Rarefying Pericementitis Fibrosa localize themselves most often in the periodontal tissues of teeth which are in traumatic occlusion, or over-function, and appear to originate in pericemental tissues which are frequently subjected to abnormal occlusal stress."

Dr. Joseph S. Graham, M.B., M.R.C.S., at the Ontario Dental Association, May, 1924, says:

"Box holds that while the rarefaction of the alveolar process is an early spectacular phase of this disease and always precedes the gingival lesion in this group, yet the essential primary lesion is in the pericementum. The disease process commences with cell proliferation in the immediate neighborhood of the minute blood-vessels in the pericementum. (Slides 40, 41, 42, 43, 46 and 60.)"

In 1920 Dr. Noyes published a paper in the Journal of the National Dental Association entitled, "Pathological Changes in the Peridental Membrane," in which he made this statement:

"After studying many sections, from a large number of teeth, it became apparent that the first positive changes occurred in the interfibrous tissue. That is in the slight amount of connective tissue that normally fills the spaces between the principal fibres which pass in bundles from the cementum to the bone. Normally this tissue is small in amount, and surrounds and accompanies the blood vessels. Figure (3) is taken from deep in the tissues beyond the point showing any distinctly pathologic change. The peridental membrane is approximately normal in thickness and character. It will be seen that the principal fibres constitute almost the entire tissue, the slight amount of interfibrous tissue is indicated at the points lettered (1). If this picture is compared with figures (4) and (5) it will be seen that the difference is in the increased amount of this interfibrous tissue and the inflammatory character of it. These spaces between the principal fibres become filled with inflammatory products which encroach more and more on the principal fibres, pushing them aside. The blood vessel walls in these areas also show inflammatory reaction. By the continuation of this process the normal arrangement of the tissue becomes profoundly altered. Figures (6) and (7) show the way in which this progresses. The two photographs are taken from the same tooth at different levels. Figure

(6) being nearer the gingiva than figure (7) and therefore in a more advanced stage. In figure (7) it will be seen that the inflammatory tissue has greatly increased in the areas of interfibrous tissue, and has pushed the principal fibres aside. In several places it has encroached upon the bone, producing absorption."

These two investigators attribute these changes of the pericementum to two entirely different causes. Dr. Noyes believes that it is the result of infection penetrating the perivascular lymphatics, although he claims that micro-organisms have not been found in the early affected tissue.

Dr. Box, on the other hand, seems to lean to the belief that these changes in the pericementum are the result of a mechanical irritant, meaning traumatic occlusion. Dr. Box, however, believes that the result of this new tissue forming in the pericementum usually ends in pocket formation, but this is not a necessary result.

This view, so established, is a histological confirmation of a clinical picture often observed and mentioned in a paper published by the writer in 1911, entitled "Alveolar Osteoclastism," which term was coined to express the fact that the lime salts disappeared from the alveolar process leaving the teeth in place, but in such a manner that you could move the teeth and process with ease. These cases are not the most common kind. The very great majority of cases we see have pocket formation. The frequency of pocket formation is explained by Dr. Box by saying:

"With the evolution of a superimposed infective periodontitis through consequent pocket formation, there is brought about the pathological composite, Chronic Periodontitis Complex, to be described later, and there is much evidence to support the viewpoint that in the production of this infective periodontitis, of paramount importance as a causative factor, is the primary establishment of the disease, Rarefying Pericementitis Fibrosa."

Both investigators have shown us a truth, apparently the same truth, which is, that the first step in periodontoclasia occurs in the pericementum in close proximity to the blood vessels, and, according to Box, evidently associated with nutritional disturbances. Whether such disturbances are the result of bacterial invasion of the lymphatics or mechanical irritation, or both, has not been proven either by Box or Noyes. It would be almost impossible to find a case in which one could not, by a little stretch of the imagination, attribute any lesion of the pericementum to traumatic occlusion, and, according to Drs. T. D. Beckwith, Ph.D.; F. V. Simonton, D.D.S., and Adrienne Williams, M.A., San Francisco, California, in the February, 1925, *Journal of the American Dental Association*:

It is very difficult to find a case where the subgingival papilla (which are served by the perivascular lymphatics of the pericementum) are at all free from the invasion of micro-organism.

Combining these facts with the fact we have positive proof that faulty diet has very great influence on the periodontal tissues, does it not seem reasonable to say that the deterioration of the pericementum exhibited

by the changes taking place in its component tissues is the result of the habits of diet of civilization? This makes it possible for traumatic occlusion, particularly traumatic torque, as well as subgingival micro-organic invasion to be, separately or together, factors in periodontoclasia. As far as the operator is concerned it seems to him that he must believe that both theories as to origin are right, because he has to deal in such a way that both conditions will be taken care of.

It is true that many cases where you would expect traumatic occlusion, have none. For instance, Dr. Husband in the *Dominion Dental Journal* of December, 1924, cites a case, speaking of one of the students as follows:

"He hadn't but four teeth in contact, not to say in normal occlusion, and yet as beautiful a set of gums as you could imagine. I don't think that a tooth occluded anterior to the second molar, and yet as beautiful a case of health in that mouth as you could wish to see."

There is not an operator who has not seen similar cases. But the line of impact of the occluding teeth will be in a line with the long axis of the tooth. Our ideas regarding traumatic torque must be tempered according to the patient for it is an unusual thing to see the teeth of the adult Esquimaux with perfect cusps or anything near like perfect cusps. Contrariwise you will see their cusps ground entirely away and not ground evenly and no sign of destruction of the alveolar process, further than, at times, a mere breaking down of the crest and, at other times, not even that. Again, you will see cases of even so-called civilized people where the mouths are exceedingly dirty and where there is a great deal of calculus formation and outside of marginal gingivitis there is no evidence of disease and no pocket formation. But you will also see these cases, after having been in this condition for some time, suddenly change, and pocket formation occur throughout the whole mouth. Just at this point I want to draw your attention to the fact that when you find periodontoclasia in the mouth you do not usually find it around one or two teeth. It will be pretty generally distributed, and if from your examination it is only apparent on one or two teeth and you treat and cure the condition which you see, other places in the same mouth later on will develop the disease, if you have not prevented it by prophylactic treatments. From a practical standpoint one does not find many of these isolated cases when one has had much experience. In every case where a patient presents himself to a dentist, if on examining the gingival crevices, they are found to be abnormally deep or to contain deposits, or the gingiva is not the proper color, it is the dentist's duty to thoroughly treat every gingival crevice in that mouth, whether they show pus formation or not. And it is also his duty to make the occlusion as nearly normal as circumstances will permit. This does not mean that we must grind through the enamel of good healthy teeth to make a three point contact or make perfect the curves of Spee. In other words, we must

not arbitrarily grind the teeth in such a way that they will conform to the lines we follow in setting up artificial dentures. We can and must depend upon Nature to help us to a certain extent where Nature has not given the patient an ideal mouth; or even where Nature has given the patient an ideal mouth to begin with, but disease has invaded the periodontium, we must do the best we can to restore conditions of health. It is essential, therefore, to know how far we can hope to succeed and to have reasonable assurance as to how far we can go in expecting a cure of a case that has developed periodontal pockets. If it were possible to entirely eliminate pockets by reattachment of the tissues our answer would be easy; but if we have to eliminate the pockets by curetting away all of the tissue forming the pockets, thereby denuding the roots of the teeth to a very great extent, making such an unsightly case that one might better have the teeth extracted,—if that is the alternative we are of much less use to the community than we had hoped to be. But this extreme operation (and it is quite an operation) fortunately is not often necessary, although sometimes it would seem to be expedient. However, if we are going to leave the gingival crevice already deepened into a deep pocket, we must have the involved soft tissues either attached to the teeth or incapable of carrying infection to the system.

I want to pay tribute to Dr. Box for the great amount of work he has done in illuminating this subject by splendid sections and slides. By Dr. Box's sections he has shown that Nature tries to cover the gingival crevice with epithelium and by covering the gingival crevice with epithelium protects the tissues that surround the gingival crevice, from infection. It is true, I believe, that at certain stages pus exudes into and out of the gingival crevice even though there is a certain amount of epithelium covering the surface. But my experience has been that if that crevice is properly treated, usually one treatment being sufficient, the pus exudation will stop, and the tissues will cling tightly around the neck of the tooth, so tightly in a great many cases you cannot insert an instrument without causing bleeding. As far as reattachment is concerned I would consider reattachment possible but rare. Many of you have seen roots embedded in the jaw, the result of an unsuccessful operation for extraction, but few have seen pericementum growing over the broken part of the embedded root because it is not usual for new cementum to be formed over the broken part of the root and be covered by new pericementum. Notwithstanding that fact I have several times exhibited slides prepared by the late Dr. Fletcher of Cincinnati, showing that unusual occurrence to have taken place. This goes to show that under certain conditions new cementum and pericementum will form but they are not the ordinary conditions we find in treating pus pockets around the teeth.

The work carried on under the direction of the Stomatological group of the University of California in connection with life-term prisoners, demonstrates the fact that reattachment of the tissues in treating pus pockets is not a common thing and not to be expected as a probable result. The case spoken of by Dr. McCall in ORAL HEALTH of January, 1925, where he claims reattachment did occur, is an unusual one. If we can have the gingival crevice, even though deep, thoroughly lined with a good thickness of epithelial tissue we need not worry whether there is or is not reattachment on all of the denuded cementum.

The experience of periodontists who have been doing this work for years seems to confirm the opinion of the writer, in that the most potent method to obtain this desired result differs not at all from procedures which would be taken in any other part of the body to bring about a state of health when tissue has been breaking down from ulceration. In other words surgical interference is necessary to remove the dead tissue and other debris and any medicines or drugs used are only secondary in their efficacy and only used as accessories. But there are some drugs and medicinal agents which will assist us in our work, for instance, Adams' Nitrate and Iodine combination is a beneficial adjunct in many cases, particularly where you have a sluggish condition of the gums. In very deep pockets Trichloroacetic Acid, when judiciously used, will materially help, but let me repeat, one must not depend solely upon medicines to obtain a desired result. As far as having benefit in your treatments from Ultra-Violet or ultra-ultra violet rays, I must again be careful in my endorsement of these agents, because such endorsement is very apt to be misunderstood. An apparatus which will make a ray of a little longer wavelength than the Roentgen ray is employed. It has been used by me for between three and four years, but I do not use it to cure any disease. It is used at times to allay post-operative distress and to induce the tissues to take on physiological action, resulting sometimes, we believe, in a more rapid rebuilding of lost tissue, provided you have the matrix of that lost tissue intact. In other words, we believe that there is at times through the influence of these short rays a beneficial effect on the regenerating tissues. We have had a few teeth tighten up after the use of the ultra-violet lamp which had refused to tighten without its assistance. I will say this,—that in a great many cases it is of valuable assistance. It is claimed that these rays will destroy micro-organisms. I believe it is true but in our work that function is of no use to us.

Another auxiliary sometimes used is vaccines. In my practice I have no need of vaccines. I have not found the necessity of using vaccines to get healing in any case. It is possible that under certain conditions of a debilitated constitution vaccines might have a therapeutic effect but so far as our work is concerned I cannot see a necessity for them. If we

have the gingival crevice free of foreign and dead material and correct the occlusion it does not seem to me that we would need vaccines. The question of occlusion, however, is a very important one, so important that I am afraid a number have lost their heads over the matter of occlusion and have been and are now attributing every form of periodontoclasia to unnatural occlusion, which is just as unfortunate as those who go to the other extreme.

The example cited in the earlier part of this paper of the Esquimaux and other primitive races grinding their teeth out of all semblance to the original cusp locking teeth which they started with and having no destruction of the alveolus and no pocket formation, and, in fact, sometimes apparently having enough resistance or vitality or whatever you would like to call it to increase the thickness of the bone surrounding their teeth, could be used as an argument against correcting unnatural occlusion. But we must remember that civilized peoples have not the same kind of food the Esquimaux have nor the same habits of the Esquimaux, consequently they have not the same strong bone construction to protect their teeth. Civilized people by their living have an etiological factor predisposing to traumatic occlusion and also for that matter, caries. Therefore it is necessary for us to as far as possible protect the teeth from injury which might result. One agency at our disposal is the grindstone. We endeavor to grind the teeth in such a way that normal occlusion will be obtained and maintained, taking into consideration the anatomy and age of the individual and the arrangement of the teeth, our principal object being to do away with unnatural force or leverage. The leverage of an incline plain usually results in torque and this leverage, though common, can in the majority of cases be obliterated with very little grinding.

I have no hesitation in saying that a force in direct line with the long axis of a tooth is not nearly so apt to give trouble as a force applied at an angle to that of the long axis of the tooth. It is true, however, that if you put an inlay or a filling in a tooth in such a way that it opens the bite slightly, provided the patient has other teeth, he will continually try to close the other teeth and bring unnatural pressure to bear on that inlay and in that way will cause an injury. But if a patient had but four upper teeth which occluded, two on each side of the mouth and you caused the bite to be opened the same distance on all four, there would not be the same inducement to cause injury to the teeth and that opening of the bite would not do harm. This fact is demonstrated to us every day in our offices when we see bridges extending from one side of the mouth to the other, with only four or five abutments supporting the bridge and that bridge doing the entire mastication of food. The bridge will often remain tight and secure for ten or twenty and more years.

We must not forget a point in this connection which is that the four abutments of those bridges which are supposed to do the work of say eight, ten or fourteen teeth actually do not do that work. I have said this before in other papers and I want to repeat it. These four abutments are in living sensitive tissue and will not take on any more stress than they are normally able to bear, and the fact that they are bound together and are not subject to the leverage which a single unsupported tooth is, to a great extent accounts for the length of time that some of the bridges last, driving home the fact that an impact in line with the long axis of the tooth will be taken care of by the tooth and the tissues which surround it and give it support. I have gone into this subject more thoroughly in a previous paper read before the National Dental Association and printed in the *National Dental Journal*, May, 1924, and the *Dominion Dental Journal* of August, 1924.

A question which is often asked is this—is it necessary to thoroughly polish the surface of the teeth ground? It is a nice thing to polish the surfaces after you have finished grinding, but they will get a certain amount of polish even though you are negligent in that matter. Usually an operator uses a half-dozen small stones of different shapes; the final stone used might well be an Arkansas stone. As far as the kind of instruments required for curetting the pockets and scaling the roots, every man has his own pet instruments. I have a set that I have made specially for my own work, but there are many different kinds on the market which will do the work to your satisfaction. But there is one instrument which many of us forget to use; that instrument is a small, round burr, ranging from size 3 to 6, which you can slip into a pocket and, while running your engine at a slow speed, quickly and painlessly remove the sharp edges of dead bone on the crest of the breaking down alveolus. This, although unusual, is an easy operation. Try it.

In conclusion, let me say, if we are going to be successful and of as much use to humanity as we should be, we cannot neglect or ignore the experience of the practical man, any more than we can of the theoretical or research man. Our business is to get all the knowledge possible from any source possible, and then to make the best use of the brains and natural talents that God had given us.

JIFFY TUBES.—Jiffy cement tubes are very liable to crack when kept in surgeries ventilated by modern systems, in which warm air (in cold weather) is pumped into the rooms throughout the day. If the jiffy tubes are stored in the workroom, where water is frequently running, they will keep perpetually in good condition.—*Australian Journal of Dentistry*.

The Journey of a Meal From Table to Tissue Through the Digestive Tract

Being Extracts from "The Commonsense of Health," by Stanley M. Rinehart, M.D. Copyright 1924 by George H. Doran Company, Publishers.

(Continued from February Issue.)

* * *

SECOND INSTALMENT.



YOUR meal has now undergone many wonderful changes. It is one creamy mass, in which the separate ingredients could not be recognized. Steak is no longer steak, but the meat and vegetable proteins are now eighteen chemical compounds. The potato and part of the bread are sugar; the sugar which was in the ice-cream and cake is modified in form, and the fats have become soap and glycerine.

In the meantime, because digestion does not take place all at once, absorption has begun. The liquefied digested food is passing into small vessels that line the intestinal walls. And from these it gets into the blood stream, in which it will be carried to every part of the body. Each tissue, whether skin, bone, muscle, or brain, will select the kind of nourishment best suited to it.

Let the experts juggle with carbohydrates and proteins if they will. We want to know a few practical facts about food. And we might begin with the question: What use do we make of it after it has been absorbed? Afterwards we may concern ourselves with attempting to determine just what is over-eating.

Taking the first question first, food is of two kinds, that which builds up or replaces, and that which burns up, to supply heat or energy. The building foods are the proteins, the minerals and water. The fuels are the fats and those sugar compounds which have been made from starch and cane sugar. The sugar compounds formed by digestion differ chemically from both the original materials. The fats were changed into soap and glycerine for the purpose of absorption only. After this has occurred the glands lining the intestinal walls again transform them back into finely divided fat.

There are several great storehouses for fat in the body, where it is kept for future use. One is just beneath the surface of the body, under the skin. Another is in the membranes which hang like curtains over

parts of the intestines. From this latter fat-deposit in animals is obtained the suet that we buy at the meat shops.

From these storehouses is drawn the burning material in times of famine or plenty, but in plenteous days it is constantly being replaced and the supply is not diminished. The hibernating bear during a season of foraging lays up great quantities of fat, which he uses to make heat throughout his long winter's sleep.

The story of the journey of a meal from table to tissue would not be complete without a paragraph or two about germs, those minute forms of vegetable life with which we contend in our struggle for existence from the cradle to the grave. Germs may be friendly as well as inimical. Life without the friendly germs would be difficult, if not impossible, and a sterile, germless existence is inconceivable.

They do not inhabit the stomach, but are present both in the small and large intestine, where they are an aid to digestion. In the small

Food is of two kinds, that which builds up or replaces, and that which burns up, to supply heat and energy. The building foods are the proteins, the minerals and water. The fuels are the fats and those sugar compounds which have been made from starch and cane sugar.

intestine they assist in changing starches into sugar and in digesting fats also. In the large intestine they attack the proteins which have not been completely changed. And therein lies a danger. If one has eaten too much protein food in proportion to the amount of starch and sugar, they will change it into poisonous compounds. These decomposition products are similar to those which occur in meat or vegetables too long exposed to the air before they are eaten. But they may occur in the lower bowel also, especially if waste material is retained. In either case the result is putrefaction, and absorption of such material causes auto-intoxication.

Which brings up the subject of waste, that part of everything edible which cannot be used. The proportion of waste varies with different foods, but it is greater in the vegetable kingdom than in meat, and some vegetables contain more fibre, or cellulose, than others. One thing certain is that it is necessary to health.

Bulk stimulates the movement of the lower bowels and prevents the accumulation of material which becomes poisonous if allowed to remain too long. This is another reason why meat, which is a highly concentrated food, should be eaten sparingly. Some of the vegetables that

are useful because they are composed of a large amount of cellulose will be mentioned later.

There are important food elements called *vitamines* about which comparatively little is known. What is known is that they are present in all proteins, and that without them life could not exist.

They are in all fruits and vegetables, and in meat because they are an essential part of the proteins which the animals obtain by eating vegetables. Also they are in milk for the same reason. The outer layers of cereals, such as wheat, for instance, contain the *vitamines*, and hence they are not present when these layers have been removed, leaving only their starchy centres. The manner of their discovery may be interesting.

Beriberi is a disease much more common in European and Asiatic countries than in America. Its principal characteristics are pains throughout the body, impoverished blood, dropsy, wasting of the muscles, and paralysis. In extreme cases death results from a weakened heart muscle. Until a short time ago physicians thought that it was a germ disease. Almost all obscure diseases are attributed to germs until an alibi is proved.

Beriberi was once quite prevalent in the Japanese army when polished rice was almost the sole ration, but it disappeared when the soldiers were given a more varied diet. Polished rice is that from which the outer layers have been removed, leaving only the starchy kernel.

Then scientists in many places began to experiment to see if they could produce beriberi. One of these experiments was as follows: Fowls were fed upon polished rice exclusively. Within a very short time they began to be affected, staggering about drunkenly, too weak to stand. In six weeks they were paralyzed. Then the rice hulls were added to their diet, and they all promptly recovered.

And so it was determined that the *vitamines* are necessary, not only to health, but to life itself. They are contained in concentrated form in the outer layers of grains, and for this reason whole wheat flour is much more nutritious than white flour.

The other elements which compose every meal may be dismissed with a very few words, because they do not have to be digested. And yet they enter into every digestive process and into the composition of every tissue of the body. They are the minerals and water. They are many, and their compounds are too complex to be mentioned in detail here. One important function of the minerals is to assist in the chemical changes which are involved in the processes of digestion and assimilation.

Finally, our meal has reached the tissues and has become a part of them in a manner not yet wholly understood. But we know that each, whether bone or brain, heart-muscle or hair follicle, skin or mucous membrane, has taken the proper sustenance unto itself to restore tissues

that have broken down and been carried away by the blood stream to be cast off, or has been burned up to supply the heat and energy necessary to keep this wonderful machine of ours going.

A part of it will renew the heart muscle, which, by its contractions, sends the blood stream through the minutest vessels with force sufficient to insure its return to the heart. A part will supply the brain, which will make an end-product of it in the form of action and emotions. And so we might trace this meal, in imagination, to great thoughts and heroic deeds.

Now that we have finished digesting and assimilating a well-balanced, rational meal, of sufficient quality and quantity, we come to the question of over-eating. And immediately we encounter difficulties, because people differ so radically and so variously concerning it. Probably more books and magazine articles have been written about this phase of the question than about any other subject that deals with the human body.

*Germ*s may be friendly as well as inimical. Life without the friendly germs would be difficult, if not impossible, and a sterile, germless existence is inconceivable.

They do not inhabit the stomach, but are present both in the small and large intestine, where they are an aid to digestion. In the small intestine they assist in changing starches into sugar and in digesting fats also. In the large intestine they attack the proteins which have not been completely changed.

The Fruitarian thinks that the Vegetarian over-eats, and the Vegetarian considers it irrational to eat any meat at all. And there are an increasing number of persons who weigh and balance their food, holding that one is a glutton if he satisfies a normal appetite and refuses to leave the table hungry.

These differences of opinion will never be reconciled as long as there are individuals who think for themselves, so there will be no attempt made here to settle them. With the advancing centuries the standards of eating have changed. In a sense, there are more people now who over-eat than ever before, but it is because there are more people able to indulge their appetites. But gluttony is not fashionable any more, and the trencherman is no longer a hero.

It is probable that there were fasters and food faddists in ancient times, but on this point history is silent. It was the ones who ate the most whose names were celebrated in song and story.

The first name that occurs to one in this connection is that of Helio-gabulus. It is related that he and his banquet guests were wont to eat several meals at a sitting. They used the kindly offices of a feather in the throat to bring about a reversal of the swallowing process, and thus make room for another meal.

Such a procedure would be inconceivable nowadays. And yet there are modern counterparts of those Romans, who differ only in degree, not in kind. For instance, there is the parent who allows a child to eat too many and too rich viands at a party, knowing that there is plenty of castor oil at home. Also the man who over-indulges in food and drink at a dinner because, just before going to bed, he intends to take three brown pills and two headache tablets.

Next in the list of gustatory heroes may be mentioned Louis XIV. When Louis was in form it was not at all unusual for him to consume at a single dinner the following: Four plates of soup, of different kinds; a whole pheasant; a partridge, a salad; several helpings of roast mutton; two large slices of ham; a pastry; and preserved fruits and nuts. Note the semicolons in the preceding sentence. They are intended to represent short pauses between courses, for breath.

Is it any wonder that the "Grand Monarch" had to take a cure frequently, when he went into retirement for several days and was dosed with calomel and sulphur? These periods of retirement, rather than his gluttonous habits, enabled him to live to an over-ripe old age.

Savarin immortalizes a General Bisson by relating that he drank eight bottles of wine while eating a huge breakfast, and tells of a certain Prosper Sibuet who, on a wager, ate a whole turkey—after dinner!

That will do for historic examples. With us such feats are no longer glorified and emulated. But over-eating may be just as harmful, although only relative. Those who perform severe manual labor, or live in an extremely cold climate, may eat with impunity an amount which, if consumed by one of sedentary habits, would be unsafe and immoral.

An Arctic explorer once witnessed an Eskimo eat twenty pounds of raw meat, and wash it down with a quart of train oil. But the Eskimo needed fuel against the cold, and his opportunities to obtain it were infrequent and precarious.

Over-eating begins as an occasional indulgence, which, if often repeated, soon becomes a habit, and finally a vice. The occasional gus-

tatory spree, usually at a formal dinner, or upon a holiday, may do no permanent harm because Nature takes care of it. An over-loaded and indignant stomach will often rebel, to our temporary discomfort but lasting benefit.

In spite of the dictum of those who insist that one must always leave the table hungry, physiologists say that there is no harm in laying up a small store of reserve fuel. It may be needed at some future time for extraordinary mental or physical effort.

But there is no physical or moral extenuation for the chronic over-eater. The immediate results of such a habit are fatigue, drowsiness, and finally stupor.

Do you remember Joe, the fat boy, at whom Mr. Wardle was always shouting: "Joe! Damn that boy, he's asleep again." Joe had an overpowering predilection for meat pies and mutton and roast beef.

Do you remember Joe, the fat boy, at whom Mr. Wardle was always shouting: "Joe! Damn that boy, he's asleep again." Joe had an overpowering predilection for meat pies and mutton and roast beef. He is a humorous character, in fiction. But in real life he would be Tragedy personified, because Joe was a victim of chronic poisoning.

He is a humorous character, in fiction. But in real life he would be Tragedy personified, because Joe was a victim of chronic poisoning.

Nature's laws, like the mills of the gods, grind slowly. After having established a tolerance for too much food, one takes on increasing girth. This is due not only to the layers of fat in the coal bins of the body, but to dilatation of the stomach and bowels. The liver also becomes engorged.

Gradually the kidneys become chronically diseased, broken down by their increasing labors in carrying away the food products which are so greatly in excess of the demand. Then degenerative changes take place in the blood-vessels, followed by high blood pressure. And finally, a weakened heart muscle breaks down under the strain.

Let one who has such conditions more or less advanced go to a banquet. Perhaps he is to speak. He eats more than usual, even for him. He rises to his feet, his face flushed—probably it is dark red—to respond to a toast. Then, possibly before he has opened his lips, he falls.

"Indigestion" is the general verdict. But chronic indiscretion would

be nearer the truth, long-continued and repeated indiscretions. What has occurred is only a climax. A stomach distended with food, and the excitement, are the final over-load upon a weak heart and hardening arteries.

One may be a chronic over-eater, although he eats sparingly, if he indulges his appetite for meat at the expense of vegetable food. The daily ration should consist of about one-tenth part meat, by weight. Any more is superfluous, and much more is harmful.

Conversely, those who habitually eat too much meat are under-feeding, because they are denying themselves certain forms of food which are essential to the preservation of a healthy body. If any kind of food can be spared without resultant harm it is meat, but the well-balanced diet for the healthy person contains both meat and vegetables in proper proportion, the vegetarians notwithstanding.

The general rules for rational eating may be summed up in the following dietetic decalogue:

Eat when hungry.

Most of us eat at least one meal a day for the sole reason that it is meal time, and not because appetite leads us to the table. Omit a meal occasionally if you are indifferent to it. Hunger is necessary to perfect digestion, and lack of hunger makes food a burden.

Eat less than you have been accustomed to eat, especially less meat.

Thus saith the Preacher, in Ecclesiastes: "Blessed are thou, O land . . . when thy princes eat in due season, for strength, and not for drunkenness!"

Eat a variety.

Here the case of an English physician may point the moral. Experimenting with himself in an endeavor to find out the minimum amount of food which would sustain life, for forty days he lived upon bread and water, then for a month upon sugar and water, and finally for three weeks upon bread, water and olive oil.

He proved conclusively that he could exist for ninety-one days on bread, sugar, olive oil and water. But, unfortunately for the experimenter, he died of scurvy very shortly afterward. It was not lack of bulk that caused death, but lack of variety. A very small proportion of fresh vegetables and fruits would have saved him.

Chew thoroughly, but not excessively.

Observe the golden mean between voracious bolting and protracted chewing; discriminate between the meats and starchy food in this respect. And by no means anxiously count the number of chews to a

swallow, or you may become morbid and introspective. Besides, the meal will lose all its zest.

Eat plenty of bulk.

That is, foods which are composed largely of cellulose; which is necessary to facilitate the onward and downward movement in the digestive canal. Among these may be mentioned lettuce, spinach, cucumbers, tomatoes, cabbage, radishes, onions, celery, asparagus and carrots. Skins of fruits, such as the apple and the grape, are good also if well chewed.

If the amount of waste which you are able to get in this diet is not sufficient to stimulate the lower bowel, take a tablespoonful of bran with your coarse oatmeal in the morning.

Eat fruit.

Both raw and cooked fruits are good for their laxative qualities. Drink fruit juices also between meals. Besides, the acid fruits and berries contain certain elements which cannot be obtained from other sources. This, of course, with the reservation that some people cannot take acid fruits, especially raw, with impunity.

Drink water.

Plenty of it, but mostly between meals and not when eating. Do not use water or milk or coffee or tea to wash down imperfectly masticated food. A reasonable amount of fluid taken with meals will not retard digestion, but will pass through the stomach without markedly diluting their contents.

Avoid indigestible combinations.

Eat sparingly, if at all, of fried foods, pies and pastries. Starch will not digest easily if cooked with animal fat.

Don't forget the vitamins!

A varied diet, which consists of fresh vegetables as well as meat will supply enough of them, but they are especially found in the whole grains. For this reason whole wheat flour and the old-fashioned coarse oat meal are valuable.

Finally, eat happily.

Nothing retards digestion more effectively than unpleasant emotions. Everything pleasing to the senses is a help, but the greatest stimulus comes from a contented, happy mind and congenial companions.

The girl who thinks no man is good enough for her, may often be right, but she is more often left.

Oral Hygiene Committee, Ontario



THE following recommendations have been adopted by the Oral Hygiene Committee of the Ontario Dental Association, upon report of a sub-committee composed of Doctors A. W. Ellis and R. J. Reade.

1. That a complimentary dinner be given to the inspectors in attendance at the Ontario Educational Association, and that the chairmen of the local Oral Hygiene Committees be invited to attend. We would suggest that the Hon. Howard Ferguson, Minister of Education, and the Hon. Forbes Godfrey, Minister of Health, be the speakers on that occasion.

2. That a luncheon be arranged for the Friday of the Convention, and that a charge be made for luncheon tickets.

3. A request having been received from Dr. Bier, chairman of the Manitoba Oral Hygiene Committee, for the use of the educational material in the possession of the Ontario Committee, at their Convention, we recommend that the request be granted, providing the material can be returned in time for the Ontario meeting.

4. That the chairman and secretary be authorized to write to the Minister of Education, stressing the necessity for lectures on oral hygiene to be given to the teachers in training in Normal schools, and the need for proper dental inspection and treatment for the children in the Government schools.

5. That the chairman and secretary be authorized to write to the Hon. Lincoln Goldie, Provincial Secretary, urging the need for an efficient dental service in the various Government institutions, and especially in the hospitals for the epileptic and insane.

6. That twelve posters, along the general lines of those submitted, be secured at a cost of \$75. These posters to be in colors, and to be used in connection with exhibits for Normal schools and rural dental health weeks.

7. That forty slides, as outlined, be obtained at a cost of \$20.

8. That the committee be instructed to secure an estimate of the cost of several special displays illustrating the harmful effects of dental diseases.

9. That charts on balloon cloth be prepared for lectures in places where a lantern cannot be used—factories, hospitals, etc.

10. The committee desires to report that the Dental Department, Ministry of Health, will prepare and distribute small pamphlets, containing material provided by the Oral Hygiene Committee, will send the oral hygiene exhibits to the places requesting them, and has made

a request for a new dental motion picture. This request was made to the Provincial Treasurer, and we hope it will be granted.

11. We would recommend that a booklet, containing the best information in the two booklets, "Care of the Teeth" and "How to Build Sound Teeth," be put in a new booklet, along with any new material which may be helpful, and that such a booklet be published by the Oral Hygiene Committee.

12. That tenders be secured for a revised copy of the booklet, "Information Useful for Public Dental Lectures."

Dietetic Deficiencies—Deficiency Diseases

MAJOR-GENERAL SIR DAVID BRUCE, K.C.B., F.R.S.

[*Major-General Sir David Bruce, K.C.B., in his presidential address at the last meeting of the British Association for the Advancement of Science, referred to the so-called deficiency diseases, and gave an interesting review of the history of the vitamin question, which we publish below.—Editor.*]

* * *

DVANCE has not been limited to the infectious group: it has been shared by other groups, notably those due to dietetic deficiencies, the so-called deficiency diseases. These deficiency diseases are just as important, or even more important, than the infectious, since they are always with us and exact an enormous toll in lowered health, lowered vitality, malformation, and inefficiency.

Until a few years ago it was taught in the schools that a complete diet consisted of certain proportions of proteins, carbohydrates, fats and salts. But our knowledge is constantly increasing, our ideas about things constantly changing, and what is looked on to-day as absolute immutable truth to-morrow is seen in the light of some newer knowledge to be but a crude beginning. So the teaching concerning what constitutes a complete and healthy diet has changed, inasmuch as certain substances have been discovered in foodstuffs in the absence of which an adequate number of calories supplied in the form of proteins, carbohydrates, fats and salts can alone neither promote growth nor support life indefinitely. These accessory food factors, or vitamins as they have been named, are present in such minute quantities in foods that they have never been isolated, and their chemical composition is therefore unknown. It is still a matter of opinion as to whether they really constitute parts of the structure of living tissues, or whether they merely act as catalysts or stimulators in the processes of growth and metabolism

That they are definite chemical substances which can be added to or removed from a foodstuff, with good or evil results, has, however, been abundantly proved.

The untutored savage living on the natural fruits of the earth and the chase knows no deficiency diseases. It is only when man begins by artificial means to polish his rice, whiten his flour, and tin his beef and vegetables, that the trouble begins. Civilized man living in comfort, drawing his food supply from the whole earth and able to vary his dietary at will, is in little danger; but it is otherwise with children and adults living under institutional conditions, with armies on active service, encountering extremes of climate, and with young infants on their naturally restricted diet. While it is true that deficiency diseases will only develop to their well-marked dangerous stage if the deficiency of accessory factor is severe and protracted, a slighter deficiency, if prolonged, may cause a condition of general ill-health and inefficiency not less important although ill defined and difficult to diagnose. This fact is of special importance in the case of infants and young children.

THE DISCOVERY OF VITAMINS.

At the present time, three, and possibly four, distinct vitamins have been described and studied, and it is probably only a matter of time for others to be discovered.

The discovery of vitamins dates to the middle of the 18th century. In 1747 James Lind, a surgeon in the British Navy, carried out a series of experimental observations upon sailors suffering from scurvy, the conception and performance of which were entirely admirable. By appropriate control experiments he showed that the medical means in vogue for the treatment of the disease were futile, when not harmful, but that orange and lemon juices were a specific cure. Lind attempted to ascertain the relative anti-scorbutic value of various fruits and green vegetables, but was unable to observe a "superior virtue" in one rather than in another. He confirmed Kramer's observations made at the beginning of the 18th century, during the war between the Turks and the Holy Roman Empire, that dried vegetables were useless, and adopts the explanation of his friend Cockburn "that no moisture whatever could restore the natural juices of the plant lost by evaporation," which Cockburn imagined were "altered by a fermentation which they underwent in drying."

Lind was struck with the beneficial effect of cow's milk in the treatment of scurvy. He explained it on the supposition of the milk "being a truly vegetable liquor, an emulsion prepared of the most succulent wholesome herbs."

Lind applied himself to the applications of these discoveries for the

prevention of scurvy in the Navy, and recommended lemon-juice concentrated to a syrup by evaporation to be carried in all ships and served out to the sailors.

By the beginning of the 19th century the carriage of lemon-juice was made compulsory, first in the Navy and subsequently in the mercantile marine, with the result that the ravages of scurvy were prevented. With the advent of steam traction, too, the length of voyages was curtailed and supplies of fresh provisions were obtained at more frequent intervals. Scurvy became rare, and the medical profession, being no longer faced with this disease of dietary deficiency, soon forgot the significance of Lind's discoveries.

Before leaving this subject a curious fact may be related. The lemon-juice supplied to the Navy was at first made from lemons grown in Spain and the Mediterranean countries. Afterwards, when England took over the West Indies, it was made from the lime, and scurvy again broke out. The reason of this is now known to be that whereas the lemon is particularly rich in anti-scorbutic vitamin, the lime is correspondingly poor.

The scientific study of the disease may be said to have lapsed for a century and a half, until Holst and his co-workers in Copenhagen investigated the etiology of scurvy anew on modern lines, with the help of experiments on animals. Their work, published in 1907 and 1912, formed the basis for the numerous researches carried out in England and America during and since the recent war. As a result of this work the etiology of scurvy, discovered in effect centuries earlier, has been fully established as due to lack of a specific, undetermined, and as yet unisolated, constituent of fresh foods, especially of fresh vegetables and fruits, now known as Vitamin C.

In the meantime the existence of a second vitamin, the so-called anti-beri-beri, or anti-neuritic vitamin, Vitamin B, had been discovered. Eijkman's admirable studies at the end of last century, in 1897, on the etiology of beri-beri in the Dutch Indies brought forward evidence for the view that this disease was of dietetic origin, and was caused by a diet consisting too exclusively of highly milled and polished rice. He showed that the disease could be prevented if the outer layer (or pericarp) and the embryo of the seed, which had been removed in the process of milling, were restored to the "polished" rice. Eijkman's discovery of the analogous disease in birds, *Polyneuritis gallinarum*, provided the necessary tool for further investigation of the subject. The researches of Grijns and others showed that the bran and polishings of rice were only one of many rich natural sources of the unknown principle preventing beri-beri, and it became evident that, while the disease is usually confined to tropical races subsisting largely on rice, the European white-bread eater is protected only by the varied diet he usually enjoys. Ex-

perience on active service shows that beri-beri may really develop on a diet of tinned meat and white bread or biscuit.

During the late war two examples of the use made of this new knowledge occurred in Mesopotamia. At the beginning of the campaign, on account of a difficulty in transport, there was a shortage of fresh food with the curious result that scurvy broke out among the Indian troops and beri-beri among the British. The Indians were living on dried pulses, such as peas, beans, and lentils; the British on tinned beef and biscuits. The former diet was deficient in the anti-scorbutic vitamin on account of the complete drying of the seeds; the latter in the anti-beri-beri factor on account of the use of white flour from which the germ had been removed.

Some years ago it had been discovered that if dried seeds are germinated, a quantity of the anti-scorbutic vitamin is produced by the act of sprouting. This was done. The dried peas and beans were soaked in water and then spread out in shallow layers, to cause them to sprout, which they readily did in the warm climate. The germinated seeds were then issued to the Indian troops and cooked in the usual way. As a result of this simple procedure the scurvy immediately disappeared.

In regard to the British troops it was known that the anti-beri-beri vitamin is contained in large quantities in certain cells, and notably in yeast cells. A small quantity of this substance in the form of marmite was added to the soldier's diet of bully-beef and biscuits, and the beri-beri in like manner disappeared.

It may seem strange that the conception of the role of vitamins in nutrition should have come first from the pathologist, and should not have emerged from the important advances in our knowledge of the physiology of nutrition which were made during the second half of the last century. The physiologists were preoccupied with the chemical composition of foodstuffs and their value for supplying energy and supporting growth, and with the necessity for supplying the requisite number of calories in a diet, distributed appropriately among proteins, fats, and carbohydrates, with adequate selection of mineral salts. It was only when these researches led to experiments in which animals were fed upon various mixtures of purified food elements that the investigators in this field began to realize that their repeated failures to rear animals upon such carefully arranged diets were not due to accident. The truth was suspected by Lunin in 1881, but it was not until 1912 that Hopkins published the classic experiments which proved the fact beyond a doubt. In the course of work along the same lines in the United States, McCollum and Davis in 1915 rediscovered Vitamin B, and, in addition, a third essential dietary constituent, a fat-soluble vitamin, present in butter-fat and certain other fats of animal origin, especially in cod-liver oil and other fish oils. This vitamin is known as fat-soluble Vitamin A.

RICKETS AS A DEFICIENCY DISEASE.

The discovery of the fat-soluble vitamins proved to be of great importance in elucidating the etiology of this disease, which had for long been an unsolved problem. Some authorities had erroneously considered it to be an infectious disease, like tuberculosis. Another school held the so-called Domestication Theory, that it was caused by unnatural surroundings, involving a want of sunlight, fresh air, and exercise. A third considered rickets to be caused by improper feeding, though opinions differed as to the exact nature of the dietetic defect. The conclusion, first put forward by Mellanby in 1918, that a deficiency of fat-soluble vitamins plays a most important part in the causation of the disease is now generally accepted. This has been established by a large amount of work, both experimental and clinical, carried out by Mellanby himself, McCollum and Hess and their respective co-workers in the United States, and Korenchevsky and others in England. It may be laid down that if a young animal is supplied with a sufficiency of these vitamins, rickets will not develop. The question of prevention is therefore one of economics. The difficulty is that these fat-soluble vitamins are chiefly found in such foodstuffs as butter, eggs, the fat of beef and mutton, and fish oils, all expensive articles of diet which the poorer classes can seldom afford. The only "butter" used by them is probably some form of margarine, made from vegetable oils which contain little or no anti-rachitic vitamin. The question of prevention is for the sociologist. Science can only discover the causes and point the means. It is for governments and local authorities to carry out preventive measures in practice, and it is to be feared that science is often far ahead of the community in its share of the work.

Although the theory that rickets is an infectious disease has been exploded, a great and remarkable truth was contained in the domestication and hygienic theories which held that, among other unhygienic conditions, want of sunlight was concerned in the etiology of the disease. During the last five years it has been discovered that exposure to sunlight or to the ultra-violet rays of the mercury vapor quartz lamp can cure rickets in children. Experiments on animals have shown that the effective rays in the sunlight are also the ultra-violet. This discovery has indicated lack of sunlight during winter as one factor concerned in the large spring incidence of the disease in industrial cities in northern climates.

A complete and well-controlled research showing the interaction of diet and light in the prevention and cure of rickets in infants was gained in Vienna, since the war, by Dr. Harriette Chick of the Lister Institute and her four colleagues. There the curious fact came to light that infants fed on a diet deficient in anti-rachitic vitamin developed the disease

only in winter and not in summer, and, moreover, could be cured in winter by exposure to artificial forms of radiation or by administration of cod-liver oil without any other change in diet or management. Another set of children who had a sufficient supply of fat-soluble vitamins in their diet, in the form of cod-liver oil, escaped the disease altogether.

Experiments on rats have also shown that in animals fed on a rickets-producing diet, rickets does not occur if the rats are exposed regularly to sunlight or to the rays of the mercury lamp, or other form of artificial ultra-violet radiation; whereas if they are kept in the dark, rickets does develop. If, on the other hand, the diet is complete in all respects, including abundance of fat-soluble vitamins, the animals do not develop the disease, even if kept constantly in the dark.

How this is brought about is not known. At one time it was thought that the action of the ultra-violet rays on the tissues might enable the animal to synthesise fat-soluble vitamins, as it does in the tissues of plants, but recent evidence brought forward by Miss Margaret Hume in Vienna, and by Goldblatt and Soames at the Lister Institute, suggests that light can neither create nor act as a substitute for the vitamin. It seems rather to act as a stimulant, enabling the animal to make full and economical use of its store of fat-soluble vitamins, and when the store is used up growth ceases in spite of the continued action of the rays.

An important and practical point in regard to the connection between diet and sunlight and the formation of the anti-rachitic vitamin is the relation to cow's milk. Recent work carried out by Dr. Ethel Luce at the Lister Institute has shown that milk obtained from a cow on pasture in summer contains a sufficiency of the growth-promoting and anti-rachitic fat-soluble vitamins. In winter, on the other hand, if the cow is stall-fed and kept in a dark stable, the milk may become deficient in these respects and young animals fed on it may become rachitic. This work shows that the seasonal variation in quality of the cow's milk may be an additional factor in the seasonal incidence of infants reared upon it. It also disposes of the idea, very current in some quarters, that cow's milk possesses low and negligible anti-rachitic properties and that the anti-rachitic properties of cod-liver oil are specific and peculiar to that substance.

Enough has been said to show that rickets may be regarded as a disease of sunless houses combined with a diet deficient in the anti-rachitic vitamin, and the means of prevention are sufficiently obvious, if not always easy and simple to carry out.

Doubtless in the future this new knowledge in regard to the accessory food factors in diet will be used to a greater extent than it has been up to the present, in which case it is not too much to expect that the city children of some future generation will have better-grown bodies and

stronger, healthier teeth than their predecessors of the pre-vitamin age.

This might be attained in a comparatively near future if only man could be allowed to work out his salvation in peace. Instead of this, great wars come and throw back the work for generations.

To saddle the country with a million and a half of unemployed, with the consequent poverty, insufficient food, clothing and housing, is not calculated to further the prevention of disease and raise the standard of health. Is it too much to hope that in the revolving years a time may come when by a Confederation or League of Nations the world may be so policed that no one country will be able with impunity to attempt the destruction of its neighbor? Until this happens it is difficult to see how rickets, tuberculosis, and other diseases can be adequately dealt with in our city populations.

Lecture Notes in Periodontology

*(Gleaned from students' notes of lectures delivered by
Dr. Harold K. Box to fifth year dental students.)*

(Continued from March issue.)

* * *

PERIODONTAL DIAGNOSIS.

T is manifest that if humanity at large is to benefit by recent advances in periodontal science, it can be accomplished only by those who have the privilege of watching individual patients through long periods of time, who are confronted with periodontal disease in its earliest phases, and who can witness its progress through its various stages. Consider then the opportunities of the general practitioner of Dentistry. He is the only member of the dental community who views the practice of Dentistry with the broad outlook. His vocation makes possible the seeing of all phases of dental knowledge in true perspective. To the general practitioner is given the opportunity of observing the conditions that predispose to disease and of noting in the periodontal tissues the first deviations from the normal. It is important therefore that the general practitioner shall have a keen appreciation of his great opportunity and a full realization of the responsibility and obligation placed upon him by recent contributions in the field of periodontal research.

During the last few years, a revival of the closer relationship between Medicine and Dentistry has been apparent. Through achievements of investigators and clinicians in periodontal disease, and their practical application to problems in Medicine and Dentistry, that relationship has become much more intimate. Dentistry is one of Medicine's favorite

helpmates. Whatever contributes to the progress of Dentistry will aid Medicine as a whole. Therefore to ensure a greater co-operation between the two professions there must of necessity be a close interrelation between the periodontal researcher and the dental practitioner. In other words, the dental practitioner must be able to detect in the periodontium the various signs which correspond with or are related to phenomena discovered by the scientific investigator in periodontal disease.

The aim of those interested in the investigation of periodontal disease is to make of Periodontology a science, and to become a science it is necessary that there shall be a certain degree of exactitude in our knowledge. The facts upon which Periodontology is based are being carefully differentiated and classified. This is particularly true regarding the causative factors of disease, the types of pathology met with in practice, and the signs of incipient periodontal disease.

Concerning the early stages of disease, Sir James Mackenzie has made the following statement:—"It is accepted universally that the earlier a disease is detected the more amenable it is to treatment. It behooves us, then, to recognize disease in its earliest stages. If careful consideration be given to the matter, the importance of recognizing the early stages of disease will be realized, and moreover from the patient's point of view, it is vastly more important to observe the early stages of disease than to recognize its peculiarities when it has produced physical signs, or when it is found on the post-mortem table."

In Periodontology, however, we are dependent, in the recognition of incipient disease, upon the detection of the earliest discernible signs in the periodontium. It is with the thought of assisting in the early recognition of periodontal disease that these diagnostic signs are submitted. Each student is advised to memorize these signs, together with their descriptions as found in Bulletin No. 7, Canadian Dental Research Foundation.

The signs are as follows:—

1. Traumatic Crescent.
2. Congestion of the Marginal Gingiva.
3. Mobility No. 1.
4. Recession of the Marginal Gingival Line.
5. Asymmetric Recession of the Marginal Gingival Line.
6. Recession of the Alveolar Crest Line.
7. Increased Radiolucency of the Alveolar Crest or Lamina Dura.
8. Disturbance of Normal Contour of the Alveolar Crest.
9. Increased Widening of the Pericemental Space.
10. Mobility No. 2.
11. Shortening of the Crest of the Septal Gingiva.
12. Linear Depressions in the Alveolar Mucosa.
13. Stillman's Clefts.
14. Absence of Stippling.
15. Festoons.
16. Injection of Blood-Vessels in the Marginal Gingiva.
17. Increased Depth of the Gingival Crevice.
18. Epithelial Nodules.
19. Distended Veins in the Mucosa.
20. Pus-cells in the Crevicular Exudate.

POCKET FORMATION AND ITS SIGNIFICANCE IN DIAGNOSIS.

A cemental-gingival pocket is formed at the base of the gingival crevice through separation of the tissue of the cemental gingiva from the cementum.

The cemental gingiva is that division of the gingivae which rests upon and is supported by the crests of the alveolar process. It is attached to the cementum from the level of these crests to the amelo-cemental junction. This tissue in turn supports the marginal gingiva, which, by its apposition with the enamel, forms the gingival crevice. It will be recalled that its circulation is derived, in part, from the pericementum, in part from the alveolar mucosa. Its circulation is also continuous with that of the marginal gingiva. It is subject to circulatory disturbance arising in either the pericementum or the marginal gingiva. This fact, together with its proximity to the gingival crevice which so frequently contains pathogenic bacteria, renders this tissue peculiarly susceptible to infection.

A pericemental pocket is formed through extension of a cemental-gingival pocket into the pericementum.

The pericementum, it will be recalled, is the tissue that fills the space between the root of the tooth and the wall of the alveolus.

When infection takes place in the cemental gingiva, it usually occurs at the base of the gingival crevice, where, through imperfect junction of the epithelial cells with the cementum, or because of the extreme thinness of this defensive covering, invasion of the underlying connective tissue by bacteria is readily accomplished. Under the microscope the tissue in this locality exhibits infiltration by plasma cells and lymphocytes, denoting that the lesion is, as a rule, of the sub-acute type.

Because of the fact that these lesions are usually initiated as sub-acute inflammations, the classic signs of acute inflammation are lacking. This most important pathological process is therefore extremely difficult to diagnose clinically until sufficient separation from the cementum has occurred to permit of measurement by the probe. Regardless of whether there is a visible pus formation or not, a separation of soft tissue from the tooth which permits the insertion of a probe to a depth of more than two millimeters (the average depth of the crevice) is in the average case indicative of pocket formation.

When the pocket involves the pericementum, in other words, when it has penetrated completely through the cemental gingiva, the depth of which is also two millimeters, there is indicated the existence of a Chronic Periodontitis. It will be recalled that by the term Periodontitis is denoted an inflammation of the periodontium, and that a disease so designated involves all three components, the gingivae, the pericement-

tum and the alveolar process. In the Simplex type of Periodontitis the alveolar resorption has taken place through the lesion, Infective Osteitis. The following are the phases: (1) Chronic Gingivitis (pocket in cemental gingiva). (2) Infective Osteitis. (3) Chronic Pericementitis (pocket in pericementum).

In the Complex type of Periodontitis the preceding alveolar loss has been brought about by the lesion, Rarefying Pericementitis Fibrosa. The phases of the superimposed Infective Periodontitis are: (1) Chronic Gingivitis (pocket in cemental gingiva). (2) Chronic Pericementitis (pocket in pericementum). (3) Infective Osteitis.

DIFFERENTIAL DIAGNOSIS THROUGH PROBE-MEASUREMENT.

The probes in use in the Royal College of Dental Surgeons are five in number, and are known as Diagnostic Periodontal Probes (Box) Nos. 1, 2, 3, 4, 5.

The purpose of these probes is three-fold:

- (1) The detection of pockets in the gingivae and pericementum.
- (2) The determination in millimeters of the depth of the pockets.
- (3) The differentiation by measurement of the normal gingival crevice and gingival and pericemental pockets.

The measuring part of each probe is made of sterling silver, and is 16 mm. in length. Each millimeter is marked by a cross-line with distinguishing signs on the 2nd (the normal crevice depth), the 4th (the base of the normal vertical thickness of the cemental gingiva), and the 6th (a given pericemental marking, for convenience in noting deep pocket measurements).

The average depth of the gingival crevice is 2 millimeters. The cemental gingiva in the average case from the level of the alveolar crest and the beginning of the pericementum, to the base of the normal gingival crevice measures 2 millimeters.

When the probe can be inserted under the gingival margin to a depth between the 2nd and 4th millimeter mark, it indicates a pocket of corresponding depth in the cemental gingiva—(Chronic Gingivitis). In other words, when the probe shows a measurement of 4 millimeters from the gingival margin, it denotes a pocket in the cemental gingiva 2 millimeters deep.

If the probe penetrates farther than the 4th millimetre mark, it may be assumed that the pocket involves the pericementum (Chronic Pericementitis), thus indicating, as stated previously, a Chronic Periodontitis.

By this method, therefore, with the use of these special probes, a differential diagnosis between Chronic Gingivitis (pocket in the cemental gingiva) and Chronic Periodontitis (pocket in the pericementum) can be made.

- No. 1 Probe:
Adapted for labial and proximal surfaces of centrals, laterals and cuspids.
- No. 2 Probe:
Adapted for lingual surfaces of centrals, laterals and cuspids.
- No. 3 Probe:
Adapted for Buccal surfaces of upper right bicuspid and molars.
Adapted for Lingual surfaces of upper left bicuspid and molars.
Adapted for Buccal surfaces of lower right bicuspid and molars.
Adapted for Lingual surfaces of lower left bicuspid and molars.
Adapted for Disto—proximal surfaces of upper right bicuspid and molars.
Adapted for Mesio—proximal surfaces of upper left bicuspid and molars.
Adapted for Disto—proximal surfaces of lower right bicuspid and molars.
Adapted for Mesio—proximal surfaces of lower left bicuspid and molars.
- No. 4 Probe:
Adapted for Buccal surfaces of upper left bicuspid and molars.
Adapted for Lingual surfaces of upper right bicuspid and molars.
Adapted for Buccal surfaces of lower right bicuspid and molars.
Adapted for Lingual surfaces of lower left bicuspid and molars.
Adapted for Disto—proximal surfaces of upper left bicuspid and molars.
Adapted for Mesio—proximal surfaces of upper right bicuspid and molars.
Adapted for Disto—proximal surfaces of lower right bicuspid and molars.
Adapted for Mesio—proximal surfaces of lower left bicuspid and molars.
- No. 5 Probe:
Adapted for distal pockets in molars.

(To be continued.)

Meeting of Dominion Dental Council, Vancouver, August, 1924

W. M. McGUIRE, D.D.S.

President, Dominion Dental Council.

* * *

MINUTES of meeting of the Dominion Dental Council in Vancouver, B.C., August 7th, 1924. Present: Drs. J. M. Magee, St. John, N.B.; W. M. McGuire, Simcoe, Ont.; G. F. Bush, Winnipeg, Man.; J. W. Clay, Calgary, Alta.; J. S. Bagnall, Charlottetown, P.E.I.; G. K. Thomson, Halifax, N.S.; and W. D. Cowan, Regina, Sask. Owing to illness, Dr. Magee, President, was unable to attend, and Dr. McGuire, 1st Vice-President, took the chair.

The minutes of the previous meeting held in Toronto were read and approved, after which the Secretary-Treasurer read his report. From this report I will give a few extracts that may convey to the Profession an idea of the extent to which candidates avail themselves of the D.D.C. examinations.

Passed Final Examination:

June, 1922—35; Sept., 1922—7; Oct., 1923—1; May, 1923

—108 (largest class we have had); Sept., 1923—17; June, 1924 (report not complete at time of meeting).

The class of 1923 was our largest and contained a large proportion of returned soldiers, from many of whom we accepted notes in payment of fees, to assist them on their way. They are nearly all making good and paying their notes promptly as they come due.

Correspondence is being carried on with the British Medical Association of the United Kingdom, regarding our attitude toward the registration of the British certificate in Canada.

The last year produced an exceptionally large number of charges of unethical practice against holders of our certificates. These have been handled as firmly but as courteously as possible. In all cases but one, such practice ceased. In that case (Dr. Mann, of Halifax) the certificate was cancelled.

The financial condition of the D.D.C. is very satisfactory, considering the strenuous period through which the country is now passing. While there has been a great increase in expenses in all branches of the Council during the last few years, we have not made any change in fees, they being the same as were adopted twenty years ago. In addition to the increased expenditures, such as printing, express, tax on cheques and receipts, etc., we enlarged the number of our examination papers, which means an additional examiner to pay. We doubled the fee for valuing the papers, and raised the fee for presiding examiners to \$15.00. The fees for presiding examiners amount to from seven to nine hundred dollars per examination. The foresight of our Secretary-Treasurer in laying away something for a lean time enables us to carry on under present conditions. If it were not for the \$1,100 interest we receive, we would not be able to meet our obligations. Fees will not be raised unless necessity compels it. We have invested in Victory Bonds held by the National Trust Company, \$21,000. At our last meeting we had in the bank \$2,869.97. Our total income since has been \$10,327, out of which we have chequed out \$9,899.17.

During the meeting many and prolonged discussions took place relating to examinations, and the conducting of examinations, and several amendments were made in our Constitution and By-laws. We have just had a supply of Constitutions and By-laws printed, containing such amendments, and those interested may have a copy by writing the Secretary, Dr. W. D. Cowan, Regina, Sask.

As a matter of protection, the D.D.C. requests the agreeing Provinces to obtain Provincial legislation requiring candidates who register under the D.D.C. certificate of qualification to make the same statutory declaration regarding the Provincial license as contained in Sec. 58 of the Constitution and By-laws of the D.D.C. Also to obtain legislative

authority to revoke provincial licenses in cases where provincial registration has been obtained by virtue of the D.D.C. certificate and this Code of Ethics has been violated.

The Dominion Dental Council agreed to recognize the University of Alberta Dental Department for the full term of years of dental study required from its students, said recognition to continue, provided Alberta remains an agreeing Province. The D.D.C. at all times recognizes for final examinations only those Dental Schools located in agreeing Provinces.

The Secretary was instructed to write the Secretary of each incorporated body in the agreeing Provinces, asking them to discuss the question of establishing a central examining body to displace the Provincial examining bodies, and to instruct their representatives so that the D.D.C. may be able to deal with the subject at its next meeting.

There was a request that agreeing Provinces defer the adoption of an additional Pre-Dental year till they agree upon a standard of education.

MEMBERSHIP.

It was resolved that the membership of any Province in the Dominion Dental Council of Canada shall commence upon the date of the first regular biennial meeting after it has elected a representative, and shall continue at least until the next regular biennial meeting. Proper notice (to be determined) of the withdrawal of any Province must be sent to the Secretary. A Province must agree to accept the certificates of all persons who secure them, before and during the time of their membership in the Council; also the certificates of all those who have taken partial examinations while the Province is a member of the D.D.C., and who subsequently complete them. Notice of withdrawal must be sent to the Secretary of the D.D.C. by registered mail, and published in one issue of the *Canada Gazette*.

Root Canals of Permanent and Deciduous Teeth



ALTER HESS, M.D., D.D.S., in a new book on "The Anatomy of the Root Canals of the Teeth of the Permanent Dentition," has arrived at some general conclusions based upon his study of hundreds of extracted teeth. These are of interest to every practitioner, and include the following:

(1) The root-canals usually conform to the outer form of the root, but may be more or less widely differentiated, according to the type of tooth, by the presence of:—

(a) Dentine partitions in the interior of the root-canals.

- (b) Delicate ramifications in the apical region of the root.
- (c) Marrow-canals, which, at different levels of the root, pass from the root-canal to the peridental membrane.

(2) These structures of differentiation normally occur in teeth which externally are perfectly normal, and are to be considered as purely anatomical, that is, to be developed physiologically.

(3) The form and number of root-canals are largely determined by the dentine partitions formed by a physiological growth of dentine within them. These occur chiefly in types of teeth anatomically so predisposed by having lateral, external grooves. These partitions may cause an extensive differentiation in root-canals which were originally of simple form. These differentiations are characterized by the appearance of spaces in the tissue, by transverse connecting-systems, and especially by the division of the root-canal into two separate canals. This division of the root-canal occurs mainly in the lower incisors and canines, in the mesio-buccal roots of upper first and second molars, in the mesial roots of the lower first and second molars, and in the upper pre-molars.

(4) The finer apical ramifications occur regularly in all types of human teeth, but in different numbers in each type. They form a net-like structure at the apices consisting of numerous fine canaliculi, and they occur especially in the upper third molars, also in the mesio-buccal roots of the first and second upper molars, in the mesial roots of the first and second lower molars, and in the upper and lower pre-molars.

(5) The marrow-canals occur likewise in all types of human teeth. They occur either as connecting canals between separate canals, or one or more penetrate the root dentine from the main canal to the peridental membrane.

(6) Age has an influence upon the form and number of the root-canals of the different types of human teeth, in that at the early-age period, before the closing of the apical foramen, structures of differentiation are generally absent; only after the foramen has closed do the divisions of the canals form. With increasing age, by a more or less regular dentine addition, a contraction of the root-canals occurs which may end in their complete obliteration.

In the same volume, Dr. Ernest Zurcher, School Dentist for the City of Zurich, reports upon the root canals of the teeth of the deciduous dentition and of the first permanent molars, summarizing his conclusions as follows:

(1) The anatomical conditions of the roots of the milk teeth resemble those of the permanent teeth; only, proportionately to the size of the teeth, the root lumina are smaller.

(2) The root-canals of the single-rooted milk teeth are of simple form, in conformity with the shape of the teeth, and show apical ramifications and marrow-canals.

(3) The lower milk incisors form an exception, for the root-canals show a tendency to divide into two. This is indicated externally by the lateral longitudinal groove on the root.

(4) The root-canals of the milk molars show wide variation. Owing to a physiological deposition of dentine, the following structures appear, first described in the permanent teeth: shoots, branches, lateral fibrils, transverse systems, isolated spaces, dentine partitions, apical ramifications and marrow-canals.

(5) The upper milk molars show a division of the canal in the mesio-buccal root into two, so that four root-canals are formed.

(6) The differentiation extends still further in the lower milk molars. By the division of the mesial and distal roots into two canals, four root-canals appear. The differentiation begins first in the mesial root, and only commences later in the distal root.

(7) The differentiation of the roots of the first permanent molars commences only after the eighth year, *i.e.*, after the growth of the root is completed and the apical foramina closed.

(8) The complete division of the mesial roots in the lower first permanent molars is in 34 per cent. of the cases completed before the fifteenth year; whilst in the upper six-year-old molars the division of the mesio-buccal roots into two canals takes place only after the fifteenth year.

(9) In the distal roots of the lower first permanent molars there is also differentiation, but this leads much later to their complete division than in the mesial roots.

W. H. Dolamore, L.R.C.P., M.R.C.S., L.D.S., to whom the book is dedicated, says in a prefatory note that:

(a) The impossibility of completely filling the root-canals, and their ramifications, by mechanical means, makes the problem of the treatment of pulpless teeth very difficult, and it would appear that its solution must be looked for in the direction suggested by Dr. Howe's silver method or by analogous means.

(b) The importance which clinicians now attach to focal infection as a factor in the causation of disease increases the necessity of a correct knowledge of the anatomy of the root-canals of teeth. This work is of great interest, therefore, not only to anatomists but to all those practising dental surgery.

(c) The comparatively simple form of the root-canals in early life, and their growing complexity later, are not the least interesting of the anatomical facts disclosed by the researches of Drs. Hess and Zurcher. It may be that the relatively greater success, which has followed the treatment of "dead" teeth in young persons, is due to this rather than to the greater tissue resistance of the young to infection as supposed.

First Mouth Hygiene Exhibit Great Success

BY MARVIN SMALL.



THE world's first attempt to centre the attention of a large city on mouth hygiene, through an educational exhibit, has been successfully launched in New York by the Allied Dental Council, with the official endorsement and co-operation of the Oral Hygiene Committee of Greater New York.

There have been dental exhibits before, of course, but heretofore these undertakings have been part of general health exhibits. Here, however, the order was reversed, and the general health agencies, such as the Tuberculosis Association, Society for the Control of Cancer and others, together with the dentists and dental organizations, directed their entire activities to the story of the teeth, to the relation of mouth hygiene and general health.

The opinion of the exhibit's effect is most aptly put by Dr. Frank T. Van Woert, of Columbia University, when he said, "You have done something here that has never been done before, and it is a fine piece of educational work. The Allied Dental Council is to be congratulated upon its great success."

However, as Dr. Maurice William, president of the council, states, "There were many shortcomings to this first exhibit—that was naturally to be expected. For one thing, we should have located the exhibit better to draw more adults at night. The big point is that we have planted the seed of an idea that is bound to flourish. It is now up to dental organizations throughout the country to take up the issue and make this start the beginning of a great mouth hygiene movement."

The Mouth Hygiene and Health Exhibit consisted in the first place of a graphic picture-story, divided into units or booths. Any wording used to help tell these stories was virtually in baby language. No words such as "eruption," "caries," "oral," "malocclusion," etc., were used anywhere. The first booth told what the parts of the mouth did, made the visitors conscious of the duties not only of the teeth, but the tongue, the salivary glands, the saliva. Models and skulls loaned by Columbia University helped to illustrate this story. Then the story of the baby teeth, when and how they came in, was told, aided by skulls furnished by the New York Dental College. The third story was "Bad Baby Habits and How to Correct Them," showing the effects of pacifiers, thumb-sucking, etc. Then came a booth on the six-year molar. Then a booth on the "Bad Effects of Crooked Teeth."

The next story was on diet, and was illustrated by a skull of a

90-year-old Indian and a 40-year-old "man of to-day," one loaned by Temple University, the other by Dr. Percy Howe, of Forsyth Dental Infirmary. Also milk, oranges, leafy vegetables and other favorable foods were exhibited. Then came the story of decay, then how abscesses form and affect the body. The following and largest booth was devoted to the pyorrhea story. The use of X-ray pictures came next, followed by an explanation of modern dentistry.

Photographs then showed, in two different booths, how neglect of the teeth brings on lost facial beauty, and how loss of the teeth gives one the appearance of looking older than he is. The last two booths showed the correct care of the mouth and teeth.

A "Chamber of Horrors" attracted very considerable attention. Here was shown what happens when the teeth are neglected. The room was draped in black, and photographs of severe cases shown. However, to lighten this "scare appeal," caricatures of people with toothache, etc., were mixed in.

Fifteen chairs were installed in the upper floor of the Allied Dental Council headquarters building, and here thousands upon thousands of children and adults had their teeth examined. The very interesting results of these examinations will be told at some other time, after further tabulations and analyses have been made. The tie-up came when the examining dentist handed each one of these thousands of people the report of his or her mouth condition (with instructions to have defects corrected at once).

On this upper floor the New York City Board of Health, the Tuberculosis Association, the New York Heart Association, Society for the Control of Cancer and the Social Hygiene Association had very interesting booths showing how various diseases are often caused by infected teeth and by germs entering the body through the mouth.

The War Department of the United States furnished material for an excellent exhibit on facial restoration through oral surgery. There were shown 360 pictures taken during the war. And, in addition, a number of manufacturers had exhibits and aided in the educational programme. It might be mentioned that these manufacturers contributed to the cost of the exhibit, but the bulk of the expense was underwritten by the dentists.

In addition to the direct benefits from the exhibit and the publicity derived, the attention directed to the subject of mouth hygiene is invaluable.

These are but a few of the sidelights. United States Senator Royal S. Copeland and a large group of prominent citizens were formed into an honorary committee in charge of the exhibit. At the opening meet-

ing Sophie Irene Loeb, head of the Child Welfare Board, and other well-known people made addresses; radio speeches were made over several stations, Dr. Harvey W. Wiley coming from Washington especially to radiocast about the exhibit and about mouth hygiene and its ability to lengthen life.

The Pathe newsreel contained quite a bit of film showing children coming to the exhibit, and also Senator Copeland teaching a number of show-girls the correct way to brush their teeth.

Silver loving cups given for the best and most beautiful teeth in several classes attracted much attention.

Collier's Weekly ran a corking editorial on the exhibit, and it might be added that this editorial has brought much comment and aroused much interest throughout the country.

The newspapers and magazines ran a considerable number of pictures and stories; almost half of the ministers in the city spoke about the exhibit and about mouth hygiene from their pulpits. So far as the publicity is concerned, I feel that it has just been started. I am sure much more will follow. Educators and social workers who visited the exhibit carried away with them impressions that will not be soon forgotten. Some of them are sure to spread the information secured through this exhibit.

The credit for this idea and the enthusiasm which put it over is due Mr. S. J. Horn, executive secretary of the Allied Dental Council, who has done much for dentistry through it.

The vital point is now, dear reader, to *carry on*. Momentum will be gathered soon enough if the leaders will but inaugurate a nation-wide campaign along these same lines.—*Oral Hygiene*.

Resolution Adopted by Preventive Dentistry Section of the First District Dental Society of the State of New York, held January, 1925



HEREAS, The Section of Preventive Dentistry of the First District Dental Society, State of New York, was organized for the purpose of studying problems concerning the prevention of dental disease and for the dissemination of knowledge pertaining to preventive dentistry; and

Whereas, A broad interpretation of preventive dentistry includes within its scope the early discovery and treatment of dental caries and other dental abnormalities; and

Whereas, Advanced dentistry recognizes the importance of preserving the deciduous teeth throughout the deciduous period, and recognizes and insists upon the importance of the detection and filling of incipient caries in all teeth; and

Whereas, It is common practice of some dentists to refuse to fill carious cavities in deciduous teeth upon the ground that "They are not temporary teeth and will be replaced by the permanent teeth," and to decline to fill small cavities in either deciduous or permanent teeth upon the ground that "They are not large enough to fill"; and

Whereas, Such practices are not in keeping with modern teaching and practice, and are obstacles to the progress of individual and organized efforts toward obtaining the objectives of the Preventive Dentistry movement; Therefore be it

Resolved, By the Section of Preventive Dentistry of the First District Dental Society, State of New York, that habitual failure to properly remove carious matter and properly fill cavities in deciduous teeth solely on the ground that such teeth are but "temporary and will later be replaced with permanent teeth," and that habitual failure to properly prepare and fill carious cavities in any teeth on the ground that such cavities are too small to fill, constitute a transgression of the accepted principles of advanced dental teaching and practice, and are, therefore, detrimental to the health and well-being of the public; and be it

Resolved, That such practices are unreservedly condemned; and be it

Resolved, That nothing in these resolutions is intended to restrict the freedom of action of the dentist in individual cases where illness or other causes would prevent the application of these principles of routine practices; and be it

Resolved, That all Dental Societies, Local, State and National Societies, as well as other unaffiliated professional dental Associations, are asked to adopt similar resolutions.

Where Dentists Are Scarce

BY GEORGE CECIL.

THE DRUGGIST'S CHANCE.



OR some time past France has been faced with a scarcity of provincial dentists; the fully-fledged practitioner, having completed his studies, prefers the relaxations of Paris to the dullness of life in a far distant townlet. Nor does every dental surgeon care to earn his living in Lille, Marseilles, Lyons, or any other

town, when he has the chance of establishing himself in the much sought-after capital. To most dentists who have studied in Paris there is but one place in which to lead a pleasant existence.

The result of this craving is that the ranks of country dental surgeons suffer from lack of recruits. At one time the dentist, or his assistant, paid a weekly visit to each townlet in the district, and a monthly one to the larger villages. Under present conditions the distressed inhabitants have to undertake a long journey to the nearest town, an expedition which may involve more than they care to pay, the railway companies having considerably augmented their pre-war rates. So the farmers, peasants, and others, being averse to "parting," often fall back on the local druggist, submitting an aching tooth to his none too skilfully wielded forceps—though not without qualms. The *pharmacien*, while knowing nothing about the anatomy of the jaw, willingly extracts the most formidable molar. Like Robinson Crusoe, he is ready to turn his hand to anything.

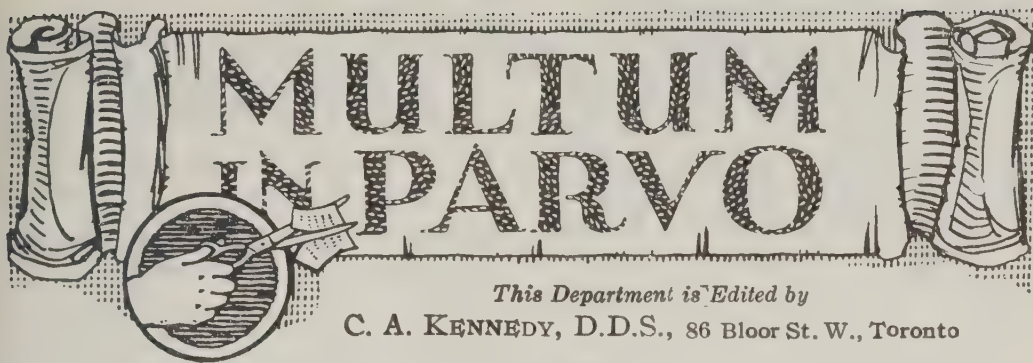
TO BENEFIT STUDENTS—AND SUFFERERS.

The Government having, after much deliberation, agreed to meet the situation, has permitted students to put in a term of practical dentistry in the provinces. Each practitioner will be allowed to count the weeks thus spent as part of the regular course, and, what is equally to the point, to charge patients a fee according to their ability to pay. Another term must be spent in acting as *locum tenens* for an over-worked and well-to-do dentist who finds it necessary to take a much-desired holiday, the substitute being permitted to benefit to the full extent of the work done. The Minister of Labor, who has engineered the scheme, and who, in his time, has greatly benefited at the hands of dentists, insists upon this basis of remuneration. The students applaud the decision.

The Minister, according to the official report, is convinced that "beginners cannot fail to be the gainers." They doubtless will reap every advantage, for never was a more practical scheme evolved in the mind of man. The patients, however, are questioning the students' ability, arguing that ripe experience is preferable to the attentions of those who are learners. It may be all this—and more; but, as the Government points out, experience must have a beginning.

"Accept the conditions or put up with toothache," is the Minister's terse comment.

The real secret of politics is to put into action the highest aspirations of the people.

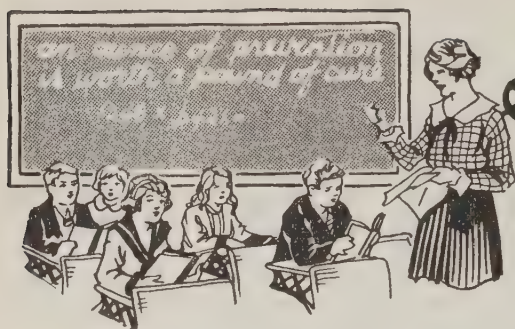


TO PREVENT PLASTER FROM ADHERING TO RUBBER.—To prevent plaster (model) from adhering to the palatal surface of a denture, and to facilitate its removal after vulcanization, leaving a surface with a glossy finish, I offer the following procedure: Thoroughly saturate the model, before applying base-plate, with silex (sodium silicate), to which has been added some ammonia and water. Wash off excess under running water. Allow the silex to dry, leaving the surface of the model smooth and glossy. The application of the silex will fill the pores of the plaster, leaving a film between plaster and rubber, preventing their admixture during vulcanization. This will prevent the annoyance of digging or scraping out of the plaster, which has a tendency to adhere to the rubber during vulcanization. A great time saver.—*Philo F. Hilderbrand.*

CONSTITUTIONAL DISTURBANCES AND ORTHODONTICS.—There are many points of view from which it is possible to consider orthodontic treatment. Dr. R. C. Willett emphasizes the importance of a careful consideration of the general physical condition of patients for whom orthodontic treatment is required. He points out that the success of the orthodontic treatment may be profoundly affected by organic and functional constitutional disturbances, and that such conditions must be dealt with if the orthodontic treatment is to be successful. Conversely, it may be argued, that the correction of malocclusion should produce a favorable effect upon such constitutional disturbances.

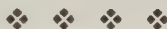
Dr. Willett gives several examples of patients suffering from malocclusion, combined with such conditions as hyperthyroidism, anæmia, functional cardiac conditions, endocrine deficiency, etc., and shows that considerable improvement was produced when both the general and dental irregularities were treated concurrently.

It is very clear that before undertaking the treatment of any dental irregularity, careful observations in regard to the general state of the patient are essential, if the efforts of the orthodontist are to be successful.—*International Journal of Orthodontia.*



School Dentistry

This Department is Edited by
EDMUND A. GRANT, D.D.S.
Director of Dental Services—Department of
Public Health, City Hall, Toronto



We are anxious to receive for publication in this Department reports of work carried on in School Dental Centres anywhere in Canada. Papers on any phase of Pedodontia would also be welcome.—E.A.G.



HAMILTON.

DR. FRED J. CONBOY, Director of Dental Services, visited the City of Hamilton recently and with the assistance of Dr. W. G. Thompson, the new Supervisor of Dental Clinics, made arrangements for a dental survey of all the children in the public and separate schools.

The dentists will give their services gratuitously and the notification cards, tongue blades, etc., will be supplied by the Dental Department of the Ministry of Health. As soon as the survey is completed a number of public meetings will be held and an active dental health campaign will be conducted.

The Honorable Forbes Godfrey, Minister of Health, and other outstanding speakers will assist in connection with this educational work. The newspapers have promised to co-operate in every way possible and the results of the survey will be broadcasted to all parts of the Province.

The Hamilton Board of Health has included in its estimates a sufficient amount of money to provide two additional dentists on half-time service and to purchase two new equipments.



EXTRACTS FROM THE ANNUAL REPORT OF THE BOARD OF HEALTH, CITY OF HAMILTON.

James Roberts, Medical Officer of Health.

Division of Dental Hygiene.

W. G. MANNING, D.D.S.

H. A. THOMPSON, D.D.S.

J. E. DORES, D.D.S.

J. L. STEWART, D.D.S.

MISS M. WILSON (Assistant)

MISS L. BREAY (Assistant)

Division of Dental Hygiene—Comprising three clinics to which are

attached four part-time dentists and two whole-time dental assistants; a physician specializing in anaesthetics gives his services weekly.

The Dental Clinic—The dental clinic at the Health Centre is under the direction of Dr. J. L. Stewart and Dr. J. E. Dore, two qualified dental surgeons, who are assisted by Miss E. M. Breay, a qualified nurse, who has received special training in dental surgery. Dr. E. B. Blain, anaesthetist, has attended a large extraction clinic weekly without any remuneration. His services have been indispensable in building up the dental branch of our public health work. Details of the work accomplished in this branch of service will be found in the dentists' report. I have to heartily thank Col. W. G. Thompson for his earnest endeavors in directing attention to the urgent need for further development of our dental work.

REPORT OF THE HEALTH CENTRE DENTAL CLINIC.

James Roberts, Esq., M.D.,
Medical Officer of Health.

SIR,—It is with a feeling of something accomplished that the annual report of the Health Centre Dental Clinic for the year 1923-24 is presented to you. A careful comparison with the report of last year will bring this to your attention. Since making the last annual return, this clinic has taken over Ryerson, Earl Kitchener and Westdale public schools, while West Avenue has been turned over to the Cannon Street Clinic. This means, that at the present time, we have five public schools and thirteen separate schools under our jurisdiction, with a total attendance of nearly 6,000 pupils.

During the past year it has been possible to increase the number not requiring treatment by 6 per cent. over all. When it is taken into consideration that there are a great number of children entering the kindergarten and primary grades each year, who have never had dental treatment, this increase is very gratifying. It is quite evident that to increase this percentage each year, it is necessary to follow up those who are inclined to let this important work slip, by not keeping their appointments. In this connection the public and separate school nurses, as well as those of the Board of Health, have given great help.

However, to accomplish more for these children, it will be necessary to establish another clinic, as we have found that when appointments are far apart they are more easily forgotten than when close together. Another clinic would also make it possible to give each patient more time than can be done at present.

The parents are showing more and more interest in this work each day, and this means that their co-operation and the better understanding by them of the work we are trying to do, will ultimately bring greater results.

In the year just finished the appointments at this clinic were 5,298. The annual inspection showed 64 per cent. needing treatment, as compared with 70 per cent. last year.

Below please find the report in detail:

Total extractions 2,070

Fillings.

Amalgam (silver)	4,680
Synthetic	196
Copper cement	1,040
Petroid cement	22
Gutta percha	1,292
Root fillings	83
Silver nitrate	151
Pulp removed	15
Porcelain crowns	2
Gas cases	71
New cases	1,553
Completed cases	1,289

THE FOLLOWING IS AN INDIVIDUAL STATEMENT OF EACH SCHOOL SURVEYED IN 1924:

SCHOOL—	No. Inspected	No. Requiring Treatment	Per Cent. O.K.
Holy Angels	138	91	34%
St. Joseph's	205	153	25%
St. Lawrence	217	161	25%
St. Thomas Aquinas	158	117	26%
Holy Family	207	162	21%
St. Mary's Boys	305	201	34%
St. Patrick's	291	208	28%
St. Thomas	176	123	30%
St. Mary's Girls'	380	257	32%
St. Ann's	355	258	28%
Holy Rosary	329	237	28%
St. Lawrence	310	227	27%
Sacred Heart	63	52	17%
Victoria Ave.	572	336	41%
Queen Victoria	455	254	44%
Stinson	729	342	53%
Earl Kitchener	744	429	42%
Westdale	57	43	26%
Total	5,691	3,651	36%

Respectfully submitted,

J. E. DORES, D.D.S.,
J. L. STEWART, D.D.S.

REPORT OF THE SCHOOL DENTAL CLINICS.

To Jas. Roberts, Esq., M.D.,
Medical Officer of Health.

DEAR SIR,—In submitting the annual report of the Dental Clinics it is a pleasure to note that in spite of the great increase in dental disease prevalent at the present time, a survey of the school children shows we are now holding our own in the maintenance of a high standard.

Four years ago a survey of the public school children showed over ninety per cent. dentally defective. This has been reduced to below sixty per cent.

Dental ills have come to play such an important part in general health that we can no longer confine ourselves to mere reparative work in our clinics.

Authorities state that eighty per cent. of disease is originated or transmitted through the oral cavity. It is only reasonable to assume that if the mouth is in a healthy condition a great deal of trouble will be prevented. Preventive dentistry is the gospel to be preached, concentrating on the younger generation we are treating.

A programme which has worked out to great advantage is:—

- (1) Prophylactic cleanings once a year, and twice if possible, for all children in the junior grades.
- (2) Extraction of unsavable and diseased teeth to put the mouth in a healthy condition.
- (3) Concentrated attention on all six year molars.
- (4) Nitrate of silver treatment to arrest decay in deciduous teeth which are retained the longest.

This service will, in a short time, produce more healthy mouths, save more six year molars, and reduce dental decay more consistently than any other means.

The hearty support of school officials in promoting the educational aspects of the dental programme is, of course, essential to its success.

Below is submitted in detail a record of the work done in the clinics during the year:

Work of Clinics at King George and Cannon St. Schools.

Total treatments	8,482
Total extractions	5,098
Fillings.	
Amalgam (silver)	3,051
Petroid cement	1,674
Copper cement	1,429
Temporary	619

Synthetic (enamel)	317
Gutta percha	3,908
Silver nitrate	5,023
Miscellaneous operations	981
New cases	3,890
Completed cases	2,692
Annual dental inspection	15,920

Respectfully submitted,

W. G. MANNING,
H. A. THOMPSON.

The Opportunity

A PERSONAL MESSAGE FROM THE PRESIDENT OF THE ONTARIO
DENTAL ASSOCIATION TO THE DENTISTS OF THE
PROVINCE OF ONTARIO.



THE Hon. Forbes Godfrey, M.D., Minister of Health for Ontario, has given the profession of Dentistry a grand opportunity to demonstrate its true worth. For nearly a quarter of a century we have felt that, if given proper recognition, we would be willing and able to take our place beside the profession of Medicine, and do our full share in the work of protecting the health of our fellow citizens.

The time for action has now arrived; we have been given a Provincial Department, with a Director of Dental Services responsible only to the Minister of Health, and we now have a chance to prove our value. Will we measure up to our privileges by sacrificing a little time for the good of the Province and the betterment of humanity? Will we volunteer to assist in connection with the activities of the new Department? Hundreds have already done so, but the benefits of the dental programme should be extended to every part of the Province, and this cannot be accomplished unless every dentist does his part.

The meanest man in the Province is the dentist who, having built up a profitable practice, cares little about the success of his fellow-practitioners or the welfare of the thousands who, because of poverty, cannot provide for themselves. Some timid dentists are unwilling to assist in connection with any public dental health movement because they fear that someone will imagine that they are trying to benefit themselves.

Let us lay aside meanness, forget our timidity, and, as a great united profession, make a supreme effort to advance the status of Dentistry by making it serve all classes of humanity in an efficient and altruistic manner.

W. G. THOMPSON,
President, Ontario Dental Association.

THROUGHOUT CANADA

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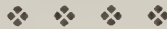
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MARITIME PROVINCES.

THE regular monthly meeting of the Halifax Dental Society for March was held on the 24th. The paper of the evening was given by Dr. R. Gordon Young, biochemist of Dalhousie Medical College, on "Diet." Dr. Young sketched the various methods used in estimating the efficiency of diets. He paid particular attention to the discovery of vitamins and other properties, stressing the importance of a correct diet for the development of the teeth. The paper was followed by a quite spirited discussion, in which most of the members presented their views on the subject of diet.



Another step in broadening the field of Dentistry has been taken this month in the inauguration of a series of lectures on Dentistry to students of the final year in Medicine at Dalhousie. Two facts are being particularly stressed in this course: 1. The result of incorrect diet and insufficient mastication on the developing teeth and jaws, factors which are more often under the control of the physician than of the dentist. 2. The effect of inefficient and diseased dentures on general systemic conditions. The course is being co-related with a series of clinics at the Victoria General Hospital and the Public Health Clinic.



The thirty-fifth annual convention of the Nova Scotia Dental Association is to be held in Digby, on the 16th, 17th and 18th of July, 1925. The programme will be announced later. This is the first time that the convention has ever been held in Digby, and as it is a delightful summer spot a good attendance is expected. There has been an increasing interest in the meetings of late years, and the committee are working hard to make this the best yet. It is planned to hold the

first session on the afternoon of the 16th, after the arrival of the morning trains, and the closing one on Saturday morning, the 18th.

J.S.B.

* * *

ONTARIO.

ACADEMY OF DENTISTRY, HAMILTON.

 R. W. D. N. MOORE, of Chicago, who gave the clinic at the final meeting of The Hamilton Academy of Dentistry, is a native of Halton county, another product of the Ontario farm, who migrated to U.S.A. even before the "Whisper of Death" was whispered.

It may have been the policy of some previous government that chased "Billy" away from home, but it was more likely Chicago's demand for good dentistry that lured him there.

"Billy" Moore entered the R.C.D.S. in 1889, taking two years. Then in 1902 he went to Chicago and graduated, coming back and graduating in Toronto in 1903. But while in Chicago his ability had been noted by Dr. C. N. Johnson, who induced him to return, where, besides being a teacher in the college, he has worked himself into a very excellent practice.

While his clinic here was on fixed bridge work attachments, he does not confine himself to any particular specialty. He is as much at home with porcelain veneers or continuous gum work as with inlays,—in fact there is nothing in dentistry that he cannot do well, even to enjoying an evening with the Hamilton dentists.

He is another R.C.D.S. man who was lost to this country through circumstances that still exist. But to show that he is not entirely "lost," while in the vicinity, he motored over to St. Catharines, where his only son is attending Ridley College.

W. G. T.

* * *

SASKATCHEWAN.

 HE Dental Societies of the three largest cities of the Province—Regina, Saskatoon and Moose Jaw—have been very active during the past winter. Under the presidency of Dr. Chegwin, Moose Jaw, the local society has been doing good work holding meetings twice every month. The regular meetings have been taken up with clinics and lectures.

Dr. C. W. Wellington has given a short course on "Compound Impressions" and "The Use of the Gysi Articulator."

The Moose Jaw Society has voted unanimously to back the movement to reorganize the Western Canada Dental Society.

Dr. B. A. Dickson, of Moose Jaw, has moved his office from the Scott Building to the new Woolworth Block.

Mr. Henderson, of the Ash-Temple Co., lectured before the Moose Jaw and Regina Dental Societies this month.

Dr. DeWitt, as president of the Regina Society, has been doing good work. The last monthly meeting was postponed one week to allow Dr. Harry Thomson, Toronto, to appear before the meeting. Dr. Thomson gave a very interesting lecture. While in Regina he also addressed the Normal students and the Collegiate students, and held a well-attended public meeting in the City Hall on the evening of March the 25th.

* * *

ALBERTA.

OBITUARY—JAMES THEODORE CONROD.



HE late Dr. Conrod was born in Sydney, N.S., March 10th, 1901, and died in Edmonton, Alberta, March 2nd, 1925.

"Dick," as he was commonly known to a host of friends and admirers, was snatched from our midst in the prime of life and height of his promise. He embodied all the qualities of a sportsman and scholar.

He was an all-round athlete, starring on the ball field and in the water. He held the Saskatchewan all-round swimming championship in 1921; championship, Regina City, 1921-22. Played football with Regina Boat Club, basketball with Alberta University, and at the time of his death was playing with the 49th Battalion team in Edmonton, in which city he was in dental practice with Dr. Dunsworth.

His early education was in the public schools of Winnipeg, and Regina public schools and Collegiate, Edmonton University, and finally in 1924 graduating from University of Toronto, Department of Dentistry.

He was the youngest son of Mr. and Mrs. T. F. Conrod, Regina. He leaves to mourn his loss his parents, two brothers and one sister, all of Regina, and a host of friends who knew him as a boy, a man and a gentleman.

* * *

Let Alberta men remember that the boys at Winnipeg are putting on a meeting in May. A very excellent programme has been arranged, and those who can do so will find it well worth while to attend. Pleasure and profit and a renewing of old acquaintance will be the result.

J. W. C.



This Department is Edited by
THOMAS COWLING, B.A., D.D.S., TORONTO



ETHYLENE ANAESTHESIA.

ETHYLENE or Olefiant gas is an unsaturated hydro carbon having the formula C_2H_4 . Ethylene, Olefiant gas, or Ethene, as it is variously designated, is the first member of the olefins, and is of special interest in view of its normal occurrence in illuminating gas made from coal. The narcotic action of the gas is said to have been discovered by Simpson, and investigated by Nunnelly, of Leeds, Eng. The recent observations that ethylene dissolved in pure ether alters its anaesthetic properties revived interest in the gas, and its actions have been worked out by Luckhardt, Carter and Easson Brown in America.

These facts are pointed out in a paper by C. Langton Hewer, M.B., B.S. Lond. (anaesthetist to St. Bartholomew's Hospital), which was recently published in *The Dental Record*, from which the following information is obtained:

The odor of ethylene may be either pungent, resembling acetylene, or a rather pleasant, ethereal one. The difference depends upon its mode of preparation. The main point of interest to the anaesthetist is the inflammability and explosibility of the gas. Pure ethylene burns with a semi-luminous flame in a manner similar to that of hydrogen. A mixture of between 4 per cent. and 15 per cent. ethylene in air explodes with moderate violence in the presence of an electric spark. Mixtures of oxygen and ethylene explode with extreme violence if the oxygen percentage exceeds 40. It should be observed that in this respect nitrous oxide acts in a similar manner to oxygen, a point to be borne in mind if anaesthesia is induced with nitrous oxide and continued with ethylene. From these observations it will be seen that the only likelihood of danger from explosion in practical work lies in (1) the application of any type of cautery to the region of the face or mouth if the patient is anaesthetized with ethylene or mixtures of this gas

with nitrous oxide or oxygen; (2) in cases where a double-airway endotracheal ethylene-oxygen anaesthesia is being given and the blast of the return airway is directed towards a naked flame, such as that of a sterilizer; (3) in passing a tracheal catheter by means of a direct-vision laryngoscope with distal illumination. An imperfect contact or short circuit of the lamp might cause a minute spark.

The question of spontaneous explosion deserves attention. Ethylene being an endothermic gas, it was thought possible that, under high pressure, explosion might occur in a similar way to acetylene. "But," says Dr. Hewer, "this fear appears to be groundless, as in America thousands of cylinders of ethylene have been compressed to about 60 atmospheres, and explosions are unknown."

From these observations it will be seen that were an explosion to occur it would probably involve the death of the patient, and serious injuries to the attendants. One such explosion, says Dr. Hewer, has recently occurred in America, and it involved the death of three persons.

The physiological action of ethylene is best described by quoting directly from Dr. Hewer's paper:

"Ethylene has an extremely powerful action on certain plants. For example, it was noted fifteen years ago by Crocker and Knight that ethylene, in a concentration of 1 to 2,000,000 parts of air, caused open carnations to close. Upon animals and man a concentration of over 75 per cent. acts as an analgesic and anaesthetic. Spectroscopic examination of the blood drawn from patients under ethylene anaesthesia does not reveal any absorption bands, showing that the gas does not combine with the haemoglobin, but is probably in a state of physical solution in the plasma. On discontinuing the administration, the gas is very quickly eliminated, although traces can be detected in the breath for several hours.

"The systolic and diastolic blood pressures and the pulse-rate appear to be practically unaffected by ethylene, provided that enough oxygen is given to avoid cyanosis. If this is allowed to develop, the pressures naturally rise. The depth and rate of respiration are also unaltered, provided that means are taken to avoid accumulations of carbon dioxide. Muscular relaxation is a variable factor. All minor operations, except possibly the reductions of dislocations, can be performed under ethylene-oxygen alone, but most abdominal sections require the addition of ether or chloroform. There is no chemical action between these compounds, and the necessary amount of vapor can be added in the anaesthetic bottle of a sight-feed gas and oxygen machine.

"To sum up, the general picture of a patient under ethylene-oxygen anaesthesia resembles one of natural sleep with a pink color, normal

pulse-rate and blood-pressure, and with a shallow regular breathing, the corneal reflex being present.”

An outstanding advantage of ethylene is the noticeable absence of the customary after-effects of anaesthetics. There is practically no vomiting. A patient can usually walk about three minutes after the removal of the mouthpiece. As compared with ethyl-chloride, ethylene shows an improvement in that there is almost complete absence of vomiting, and the recovery is much more rapid.

Ontario Dental Association Meeting

FRED J. CONBOY, D.D.S.,

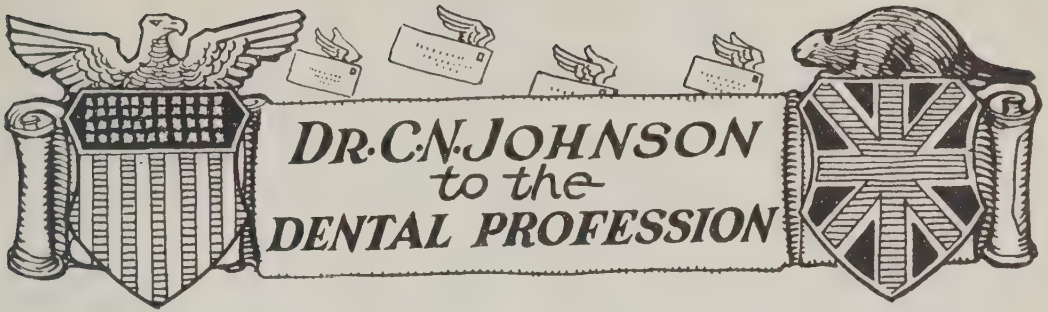
Chairman, Board of Governors, Ontario Dental Association.



THE Board of Governors of the Ontario Dental Association desires to thank the Profession for the support and co-operation given in connection with this year's Convention. All arrangements have now been completed, and the advance reports indicate a large attendance. They also show that the members are well pleased with our new home at Hart House, and realize that the University buildings offer excellent facilities for such a meeting as we hold. The programme is the best possible, and all the essayists and clinicians are enthusiastic and extremely anxious to give their best. The provision for accommodation at the University residences should make a strong appeal, and those who desire to make reservations should do so as soon as possible. This year's Convention offers many new and attractive features, and we sincerely hope that the members of the Profession will take advantage of the excellent opportunity afforded to get a complete post-graduate course under ideal conditions.

The preliminary programme will be mailed within a few days, and we earnestly urge the men to register early, that they may secure their choice of clinics and assist the various committees in making final arrangements.

APPLICATION OF NITRATE OF SILVER TO EROSION CAVITIES.—A simple method of applying the nitrate of silver is to melt it on a silver wire probe. If the thick end of the probe is heated and applied to a piece of the solid salt, the latter will be melted and will adhere to the probe, which forms a very convenient and safe applicator.—*British Dental Journal*.



Fixing Up



HERE is something wondrously comforting in going around the home and putting everything in order. To level a bit of ground here, and to pull a weed there; to trim the dead limbs from the trees and shrubs, and to burn the brush; to plant a new shoot over in the corner of the lot where we may watch it grow; to untangle the amorous vines and make them do our bidding—they become almost too loving at times; to repair that bit of roof, and that threatened break in the fence; to putty in a new pane of glass where a boisterous baseball in its errant flight had failed to notice the window and had landed in the room—there should be a law against windows anyhow when it is so manifestly necessary for boys to play ball; to build some convenient steps from the porch down into the garden; to terrace a bit here and a bit there; to cut up those big limbs of wood with a bucksaw, and pile them to dry for the huge box-stove in winter; to cement some loosened bricks on the chimney—all of this is solace to the heart and soul of man.

But the best of all is to paint the dear old house. There is nothing so redolent of the resurrection as to give the familiar walls a new dress of paint. The alchemy of chemistry never did anything more miraculous than to produce paint to preserve the wood and to transform the structure into something so gloriously beautiful. And what a fascinating procedure it is to apply the paint! It is a process of utility and art—a never-ending joy. And it requires just enough skill to put you on your mettle and make you absorbed in your work. You cannot daub it on promiscuously and have it look right; it must be laid on evenly, and, for the welfare of the wood, it must be thoroughly rubbed into the pores and cracks. One coat is seldom enough—in fact, the first coat is usually a trifle disappointing—it does not have the right gleam. But to those who know the ways of paint there is never any doubt. It grows and grows, and each succeeding coat adds to its glory and its beauty. The white deepens into purer white, till snow itself—the traditional symbol of all things white—is not more beautifully white than this. What looks cleaner or more wholesome than a pure white wall, what more typical of thrift and good taste?

And then the trim, and the porch posts and ceiling of deep green, like the lush foliage of a dense forest—the contrast with the white making a very attractive picture, and calling forth a higher order of skill in the doing. Where the white joins the green there must be a nicety of application, to prevent the one from splashing on the other. The slightest blurr shows distressingly conspicuous, and specks of slovenliness of execution—it mars the artistry of the work. What pride would there be in an occupation if there were no difficulties connected with it? To do the difficult thing and do it well is a worth-while triumph, and it must not be thought that painting a house is wholly devoid of difficult things. For instance, to stand on an extension ladder high up under a gable and reach out over the cornice and paint it, with the ladder bending and swaying under your weight, is what, in the vernacular, might be called a “ticklish job.” To stand on a ladder all day even when it does not sway makes one realize that one has feet. The rungs of the ladder have an insistent way of working up into the ball of the foot, as if they would cut it in two, or would bend the toe and heel together like those of a monkey clinging to a limb. By night your feet do not feel like feet at all, but like a couple of clubs that had been tied to your legs. The process of painting is a constant reaching—reaching up, or down, or to the right, or to the left, or diagonally in all directions. And one must be ambidextrous to obtain the best results. Talk about exercise—the swinging of Indian clubs, or the hoisting of dumb-bells, is not to be compared with this. If there is a muscle in the whole body that is not put on a tension and properly stretched by painting a house it is one that the anatomists have not yet discovered. And before you begin to paint the porch and kitchen floors you would better say your prayers several times as a matter of training, if for nothing else. If you attempt it without making this preparation you are likely to discover somewhat abruptly that man is an animal who has been for centuries habituating himself to walking in the erect position, and has largely lost the art of going on all fours. One now learns why it is that a carpet-layer straps a pad to his knees and shins, and looks grotesque; and one suddenly develops a sympathy for the carpet-layer. Also one discovers some more muscles that had been entirely overlooked before.

Painting a house has a disciplinarian value on the body and a balm to the mind that forms a marvellous combination. You are physically tired after a day of this, whether prone on your knees painting a floor or bending over backward with your head aiming at your heels painting a ceiling, but there is a positive luxury in physical weariness when it is unaccompanied by nervous tension. It is vastly different from that debilitating, nauseating exhaustion which comes from a long day in

the office, with the nerves and brain strained almost to the breaking point by the perplexing problems which sometimes assail one from morning till night. It is only after an experience like this that one really learns what utter exhaustion means. Following a day in the open with this muscle-stretching process of painting one can relax at night in glorious ease, and, climbing in between the cool sheets of the bed, can enjoy a book till drowsiness insists that the light must be put out, and—instantly we are off to the beautiful land of Nod, with not another conscious moment till daylight peeps in at the bedroom window. Oh, the joy of it all!

And to go out the next morning and see the result of our handicraft gleaming in the morning sun, with the dewdrops sparkling over the lawn and the birds bustling back and forth between the shrubbery and their nest in a corner of the shed—well, this is life, real life, life worth the living. As a panacea for tired nerves there is nothing quite equal to “fixing up” around the home.

C. H. Johnson

Interest on Your Money

“HAT reminds me of a story a prominent doctor told me the other day,” went on Dr. Armstrong, in *Doctor and Patience*. “He had performed a serious operation on the child of a wealthy man,—a man who had an income of about thirty thousand dollars a year and whose parents gave thousands to charity. The man went to the doctor to see if he couldn’t have his bill cut down. The doctor wouldn’t do it, and rightly he wouldn’t. When the man rose to go, he said: ‘Well, Doctor, the fact of the matter is, I can’t pay you at once. I’ll have to admit that your services are worth every cent you ask, for you saved my child’s life. At present all my money is tied up in securities which I can’t sell just now. I’d lose the interest.’ ‘Frankly, between you and me, Mr. So-and-So,’ said the doctor, ‘whose money is this, yours or mine? Do you realize that if you paid me now, I could make six per cent. on that money, too?’

“‘I never thought of that,’ thoughtfully replied the other. And then he sat down and wrote him out a check for the full amount.”

Officers of Canadian Dental Organizations

*Oral Health will be Pleased to Receive Additions or Corrections that Directory
of Names May be Kept as Accurate as Possible*



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Surgeons of B.C., Vancouver, B.C.



DIRECTORY of DENTAL MEETINGS & OFFICIAL ANNOUNCEMENTS

*Dental Associations are Invited to use this Department Freely for
Announcements of Meetings*



DENTAL CONVENTION AT WINNIPEG—12th to 15th May, 1925.

EASTERN ONTARIO DENTAL ASSOCIATION—1925 Meeting at Stanley Island
(Cornwall). Date to be set by Executive.

ONTARIO DENTAL ASSOCIATION—1925 Meeting at University of Toronto, 26th to 29th
May, 1925.

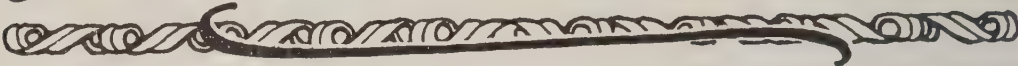
CANADIAN DENTAL ASSOCIATION—1926 Meeting at Halifax, N.S. Date to be set by
Executive.

NOVA SCOTIA DENTAL ASSOCIATION—At Digby, 16th, 17th, 18th July, 1925.

AMERICAN DENTAL ASSOCIATION—1925 Meeting at Louisville, Kentucky, 21st to 25th
September, 1925.

INTERNATIONAL DENTAL FEDERATION—1925 Meeting at Geneva, Switzerland, 2nd
to 6th August, 1925.

Oral Health



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Vol. 15

TORONTO, APRIL, 1925

No. 4



EDITORIAL



Prevention Better Than "Cure" in Malpractice Charges

DURING the past twelve months or so the number of charges laid against dentists in Canada are so alarmingly on the increase as to call for serious consideration on the part of the profession. Not that this undesirable condition of affairs is peculiar to our Canadian dentists alone, as we learn that in the United States also the same undesirable "epidemic" prevails.

The officials of the "Dentist's Legal Protective Association of Ontario" state that, especially in recent months, cases of a more or less serious nature are constantly being referred to them for advice, and in many cases to conduct the defense if necessary in the law courts of the Province.

The policy of the Protective Association has from the beginning of its activity been to use every proper influence to prevent such cases from being fought out in the open court; but if such is not possible, then to

spare neither energy nor money to clear the good name and reputation of the practitioner involved.

However, in the writer's opinion, if we are to keep these cases within reasonable bounds we must look for a remedy farther back than even legal interference or defense. This important fact must be faced by the profession, namely, that the public to-day is holding the dental practitioner strictly to account, as never before, for even the smallest degree of negligence resulting in injury, imaginary or otherwise.

The one note of warning that should be sounded through the ranks of the profession is summed up in the word "Prevention." The wise dentist to-day will, in all his operations, exercise such constant care and take such precautions, that when unlooked for trouble or injury does occur there can be shown to be no evidence of negligence on the part of the practitioner.

The law, of course, holds that the more serious the operation, the greater the care that must be exercised by the practitioner. Still the same law will not tolerate carelessness even in the most trivial operations.

Years of observation have shown that by far the large majority of charges for malpractice have arisen out of operations for the removal of a tooth or teeth; a fractured mandible (often imaginary); a tooth or a portion of a tooth escaping from the forceps and lodging in the air passages; infection resulting from the use of instruments not properly sterilized; a piece of broken needle left in the tissue; temporary collapse and even death, following the use of anaesthetics, either local or general; etc., etc. All of which goes to prove that in the operation ordinarily known as "extraction," the dentist is beset at every point with dangers and pitfalls, against which he should take every precaution to guard the welfare of the patient, and also his own reputation.

This last word of warning goes out to the general practitioner, rather than to those who specialize as exodontists. These men are sufficiently impressed through large experience of the danger lurking in every point of the operation, and so surround themselves with all necessary safeguards. But the general practitioner is accustomed, in his daily practice, to the removal of an individual tooth or root, which he is apt to look upon as a trifling affair, and one not attended with any particular danger. So the necessary precautions insisted on by the law are too frequently neglected. These are the cases that place the dentist in a very embarrassing and weak position when trouble ensues.

Malpractice charges need not have any terrors for the careful and painstaking dentist, but rather for the careless and indifferent one. Make every effort to protect your patient and in so doing you will safeguard your own reputation.

R. G. McL.

Correspondence

To the Editor of ORAL HEALTH.

Dear Doctor:—

IN the March number of ORAL HEALTH there is a communication from Dr. Trelford, containing what he asserts to be a quotation from "The Globe" of March 11th, 1924. As this is over a year ago, I have not a paper of that date at hand, and if the quotation is correct I certainly did not see it at that time. Had I seen it I would have contradicted it, because so far as I know, Dr. Hartzell has done no experimenting with the pulps of teeth which have been ground to correct mal-occlusion. I did not say to anyone that he had. The reporter may have misunderstood me in one of my interviews and believed he was repeating what I said. However, what I would say to the reporter or anybody else regarding the subject in hand would be that Drs. Hartzell and Henrici (1) had asserted that in their research work they had found that a large number of teeth with vital pulps in them contained micro-organisms in those vital pulps. I would also say that I believed it was a very dangerous thing to remove the enamel by grinding to such an extent that the dentine would be exposed, because of the possibility of micro-organisms penetrating through the dentine to the pulp.

Experiments which I carried on by my own methods and which are also mentioned in the aforementioned quotation, showed me that vital teeth which had been extracted by Exodontists and given to me contained pulps which, in sixty per cent. of the cases, had micro-organisms in them, and in no case did I find the pulps free from micro-organisms if the enamel or the cementum was not entirely protecting the dentine. In other words, the only cases which contained pulps that did not produce micro-organisms, were covered, as nearly as we could tell, by cementum and enamel. Dr. Hartzell says that even in those cases he has found micro-organisms in the pulps in cases where pus pockets existed. In order that I might be more sure of the results being what they were supposed to be and what they seemed to be through my experiments, I obtained the help of Miss Fraser, of the Dental Research Department of the University of Toronto, whose knowledge of Bacteriology is not questioned, and under her instructions obtained pulp material which she cultured. And although the cases which she handled for me were not great in number (probably twenty-five or so) her work seems to corroborate the experiments which I had made without her assistance.

The manner in which I removed the pulp from the teeth was as follows: I ground two grooves in the root and crown of the tooth on opposite sides of the tooth, deep enough to get my cutting forceps into, then I carefully washed the whole tooth with a solution of Hydrochloric Acid, held it under cover over a sterilized porcelain dish by a pair of sterilized tweezers, split the tooth open by sterilized cutting forceps,—the operation being done entirely under cover,—lifted the pulp out of the split tooth with a sterilized probe and dropped the pulp or fragment of it into broth and gave it to Miss Fraser. The results obtained convinced me that micro-organisms can get into the pulp of the living teeth through exposed dentine. Certainly, secondary dentine would be much more difficult for micro-organisms to penetrate, because there are one hundred more tubuli in the same space in the ordinary dentine than there are in secondary dentine and, according to (2), Dr. Boedecker and others, secondary dentine is formed in the pulp chamber to protect the pulp when caries appear at the gingival margin. No such protection is possible when the enamel is ground off the dentine by a stone.

Yours truly,

ANDREW J. McDONAGH.

Toronto, April 7th, 1925.

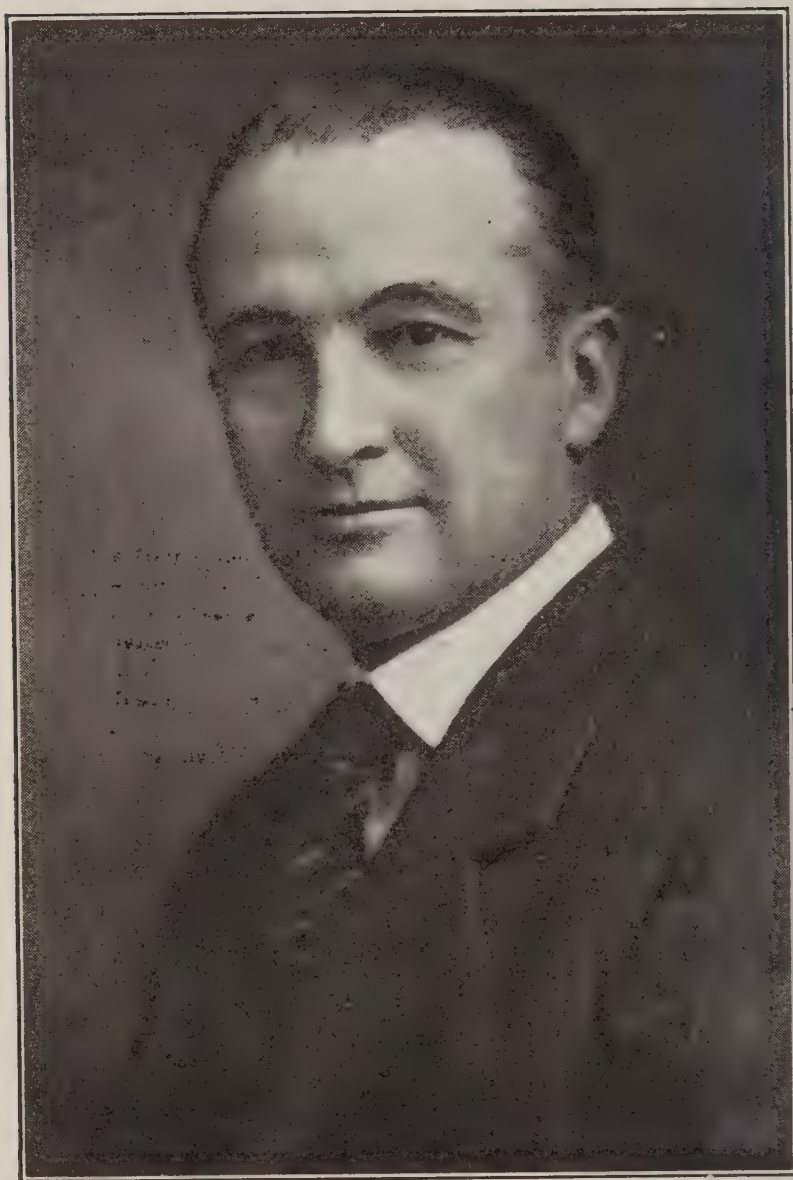
¹ Henrici and Hartzell, "The Bacteriology of Vital Pulps," Jour. Dental Research, 1, No. 4, December, 1919.

A Microscopic Study of Pulps from Infected Teeth, the Journal of The National Dental Association, Vol. 8, No. 3, March, 1921, pp. 213-216.

² Microscopic Study of Enamel Fissures, by C. F. Boedecker, D.D.S., New York, Dental Cosmos for October, 1924.

A LITTLE more patience, a little more charity for all, a little more devotion, a little more love; with less bowing down to the past, and a silent ignoring of pretended authority; a brave looking forward to the future with more faith in our fellows, and the race will be ripe for a great burst of light and life.

—*Elbert Hubbard.*



R. GORDON McLEAN, D.D.S.

ORAL HEALTH

*A JOURNAL THAT STANDS FOR THE OUNCE OF
PREVENTION AS WELL AS THE POUND OF CURE*



Vol. 15

TORONTO, MAY, 1925

No. 5

Disciplinary Powers of the Dental Profession Upheld

R. GORDON McLEAN, D.D.S., TORONTO.



THE disciplinary powers of the Royal College of Dental Surgeons of Ontario have always been exercised with the greatest reserve and with a view to the protection and best interests of the public. The maintenance of proper ethical conduct upon the part of the members of the profession and the due observance of the recognized code among professional men are also vitally important considerations.

As a matter of fact, when a profession is carried on in the true spirit of service, whatever is best for the public is best for the profession, and what is best for the profession is best for the public.

The dental profession, however, owes it to itself, as well as to the other professions, to see that its members act in accord with the recognized practices of professional gentlemen.

The Board in the future will use the powers given them by the Dentistry Act, if members of the Profession, after warning, still persist in conducting their practice in an unethical manner and against the best interests of the public.

The judgment of the Second Divisional Court is published for the information of the profession and dismisses the appeal of Drs. Davidson and Boyle against the action of the College in suspending their licenses. The appellants may ask for leave to appeal.

The judgment, as it stands, acknowledges the legal status of the Board in its disciplinary powers and is a long step forward in maintaining the status of dentistry as a learned profession.

COPY OF REASONS FOR JUDGMENT OF SECOND DIVISIONAL COURT.

(LATCHFORD, C.J., MIDDLETON, ORDE & SMITH, J.J.A.)

DELIVERED 1ST MAY, 1925.

DAVIDSON vs. ROYAL COLLEGE OF DENTAL SURGEONS	}	Scott, K.C., and Sweet, for Appellant, Hellmuth, K.C., and G. C. Price, for Respondent.
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Latchford, C.J.—Appeal under s. 28 of The Dentistry Act, R.S.O. 1914, c. 163, against a decision of the Board of Directors of The Royal College of Dental Surgeons of Ontario made on September 23, 1924, upon a report and finding of the Discipline Committee of the College to the effect that the appellant, Dr. B. G. Davidson, a licentiate and member of the College, practising in Hamilton, had been guilty of improper conduct in a professional respect. This conduct consisted in the publication of an advertisement in the Hamilton Spectator of May 27, 1924, of the following advertisement:—

TEETH

\$15 Single Set

(Workmanship Guaranteed)

(Photograph of double set of teeth)

I am making a special "ten-day offer" to give you the opportunity to get teeth. Special prices for crown and bridgework during this time.

Extractions and Fillings Also.

DR. B. G. DAVIDSON,

54½ James St. North

Opposite Arcade

Open Evenings. Regent 3786.

Graduate of Royal College of Dental Surgeons.

Advertisements of that character are regarded by the College as objectionable from an ethical and professional point of view.

The Board under s. 27, ss. 1 of the statute has power to suspend the license of a member of the College "who has been guilty of any infamous, disgraceful or improper conduct in a professional respect." Of its own motion apparently the Board under ss. 4 of s. 27 adopted a resolution directing its Discipline Committee to investigate the alleged improper conduct of Dr. Davidson. The procedure adopted was in accord with the requirements of s. 27. The Committee consisting of four members of the College, or one more than a quorum, met at Hamilton on September 2, 1924. Due notice (ss. 13 and 14) of the meeting had been given to Dr. Davidson who attended before the Committee and was represented by counsel. Evidence taken under oath (ss. 15) established beyond question that the Doctor had published the advertisement considered objectionable and other similar advertisements. The Doctor admitted that on applying for admission to the College he had signed this pledge: "When admitted to practise dentistry I will conduct my practice ethically, and will make

all reasonable efforts to elevate the Profession of Dentistry and maintain its dignity and good name."

As required by ss. 19 the committee reported to the Board the evidence adduced and the committee's finding, (1) that the advertisement was inserted by Dr. Davidson and had his sanction and approval, and (2) that it constituted improper conduct in a professional respect, and consequently that Dr. Davidson was guilty of improper conduct in a professional respect.

Upon consideration of this report, the Board pursuant to ss. 20 made an order:—

(1) "That the certificate of license to practise Dentistry in Ontario of Dr. B. G. Davidson of Hamilton be suspended until such time as the Board shall receive satisfactory assurances from Dr. B. G. Davidson that he will cease from and not repeat the improper conduct of which he has been found guilty."

(2) "That the costs of the enquiry before the Discipline Committee be paid by Dr. B. G. Davidson after taxation."

The order was not to go into effect and become operative until ten days after service thereof upon Dr. Davidson.

Dr. Davidson did not give assurances of any kind that he would cease from advertising in the manner objected to, and launched the present appeal.

In several of the grounds of appeal it is variously stated that the advertisement was not published by Dr. Davidson or with his consent, privity or knowledge. As there was abundant evidence to the contrary, these grounds were not pressed in the argument at bar. Another ground is that evidence tendered of the publication of similar advertisements by other dentists was rejected by the Committee. This point also was not urged on behalf of the appellant. If the publication by Dr. Davidson was improper, the fact that others may have acted in the same way would not lessen the impropriety.

None of the facts is in dispute. The real ground of the appeal is that the Board not having passed, as it was empowered by s. 17 of the Act to pass, any by-laws "for the proper and better guidance . . . of the members of the College," the College had established no standard of ethics applicable to advertising by its members in the manner adopted by Dr. Davidson and that it was wrong for the Committee to report, without having evidence before it, of what was improper in a professional respect, and for the Board to decide, that what Dr. Davidson had done was improper conduct in that respect.

In his evidence Dr. Davidson admitted that the ethics of advertising formed a subject of instruction in the College and that the only approved advertising was in the form of what is called "a legal card," simply giving the dentist's name, address and "occupation," or special branch of the profession. He knew, because so notified in writing by the solicitors for the College, that his methods of advertising were considered objectionable by the College, but desired to have his rights submitted to an Appellate Court in the event of the decision of the Board being adverse, as it was.

What is or what is not ethical in any profession is not easy to define, and I am not aware that in this country any profession has formally stated any standard to which its members are required to conform. The reason is as obvious as that which has prevented our Courts from defining fraud. Yet we know that such standards exist as codes of moral conduct existed before and apart from the Decalogue.

As Boyd, C. observed in *Re CRICHTON* (1906) 13 O.L.R. 271, at 284, there are conventional rules, well recognized though it may be not forming a written code, which obtain among the members of every learned and honorable profession.

In that case the offences against the comity of the medical profession were not considered to convey the imputation of moral delinquency involved in the terms there in question, "infamous or disgraceful conduct in a professional respect" especially as it had not been proved as stated by the learned Chancellor (p. 287) that Dr. Crichton put his remedy "forward dishonestly or carelessly, not for the good of the public, but for gain or advertising," or in the words of Mabee, J., p. 294, as "there was no sufficient or proper evidence upon which the appellant could be convicted of deceitful advertising, or attempting to impose upon the credibility of the public."

In the present case the question is not whether Dr. Davidson's conduct was infamous or disgraceful, and therefore involving moral delinquency, but merely whether it was IMPROPER IN A PROFESSIONAL RESPECT.

The analogy between the powers of the defendants Board and those of the Benchers of the Law Society is very close. The Benchers were empowered by s. 44 of R.S.O. 1897, c. 172, now s. 46 of R.S.O. c. 157, to inquire into professional misconduct or CONDUCT UNBECOMING a member, and to discipline or exclude a person from membership of the Society. Considering the reported cases the analogy between professional misconduct of a member of the Law Society and improper conduct in a professional respect of a member of the Royal College of Dental Surgeons must be borne in mind, as well as the distinction between such conduct on the part of an Ontario Dentist, and "infamous or disgraceful" conduct on the part of a member of the College of Physicians and Surgeons of Ontario. This power of inquiry was considered by Chancellor Boyd (*Re Crichton* at p. 287) to be more extensive than that possessed by the Medical Council, and as authorizing the Benchers "to deal with cases where the charge is a violation of the conventional or other regulations which are either described or commonly observed in the (legal) profession;" while, in his view, the standard to be followed under the Ontario Medical Act is whether the conduct has been infamous or disgraceful in the ordinary sense of the epithets and according to the common judgment of men—an opinion adopted by Hodgins, J.A., in a medical case *Re Cherniac* (1919), 46 O.L.R., 434 at 443. In the same case Meredith, C.J.O., was of opinion that applying either that this standard or the standard in *Allinson v. General Council of Medical Education and Representation* (1894) 1 Q.B. 750, Dr. Cherniac's conduct was infamous or disgraceful in a professional respect. According to an observation of Armour, J., in *re Washington* (1893), 23 O.R. 299 at 311, conduct may be more disgraceful in a professional respect than

in the common judgment of mankind. I think that standard excellent as far as it goes. Applied to the case at bar it is as follows: If it is shown that a member of the College, in the pursuit of his profession, has done something with respect to it which would be reasonably regarded as improper by his professional brethren of good repute and competency, then it is open to the Board of Directors of the College to decide that he has been guilty of "improper conduct in a professional respect."

The eight members of the Board are chosen annually or as vacancies occur, one from each of the seven districts into which the province is divided, elected by the members of the College resident in such district, and one by or from the faculty of the School of Dentistry—ss. 4-7 of the Act. It is impossible to conceive that a body so selected is not professionally of good repute and competency and capable of impartially deciding what is improper conduct in a professional respect.

I desire to say that I have not overlooked the association of the word "improper" with the words "infamous or disgraceful." "Improper" is the last of a series not of equivalents but of diminutives. Each prior word includes the succeeding words or word. Improper is thus included in both "infamous," but it is itself much below either, and conduct that is improper may not be one or the other.

I think the appeal fails and should be dismissed with costs.

MIDDLETON, J.A.	}	I agree.
ORDE, J.A.		
SMITH, J.A.		

Mammoth's Teeth



At a dental meeting recently held in London, reports *The Dental Surgeon*, Sir John Bland Sutton, the eminent surgeon, related how he had spent a night in a tunnel which was being bored under the Thames and had discovered there the teeth of mammoths, which once disported themselves in the country which is, to-day, London. This led him to remark that although in the dead body the teeth were the most indestructible part, in the living body they, as well as the hardest bones of the skeleton, could be easily destroyed by micro-organisms. In spite of the great advances of knowledge, he continued, biologists were still unable to explain the method by which vegetable and animal life appeared on this planet. He had to confess, in all humility, that the wisest of them did not understand the forces underlying not only the growth of bone, but even such apparently simple things as the development, eruption, and shedding of teeth.

Some Results of the Abnormal Loss of the Deciduous Teeth*

S. A. MOORE, D.D.S., *London, Ont.*



ANY of us have no doubt found what appears to be a lack of interest on the part of the parents with regard to the care and treatment of the deciduous teeth of their children. We must realize that the average parent has at heart the health and welfare of the child, and if the deciduous teeth are neglected, it is probably due to the fact that they are unaware of the importance of these teeth. It, then, behooves us, as men and women interested in the health of these children, to advise the parents of the importance of these teeth as regards the present and future health of the child, and, having done so, I feel sure there will be less likelihood of lack of co-operation from that parent. It is true that some parents show an utter disregard in matters of this nature, and it is to be regretted that they do not suffer, instead of the child, for their acts of carelessness.

In order to impress the parent with the importance of the deciduous teeth, we ourselves must be familiar with the conditions resulting from their neglect. It is with regard to "Some of the Results of the Abnormal Loss of the Deciduous Teeth" that I wish to speak. There is nothing new about the facts which I will state, and all of us have probably heard them before, but I do hope that after I have finished the importance of them will be impressed upon you more deeply than before.

The deciduous teeth are used principally as a means of mastication during the early years of a child, when the full-sized permanent teeth would be out of proportion for the undeveloped jaws and features. They are also there for the purpose of giving nature an opportunity to develop and erupt the permanent teeth and establish proper occlusal relations.

The loss of a deciduous tooth may be abnormal either by being premature, or by being retained beyond the normal period. As school nurses, physicians, and dentists, we are more interested in the early loss of the teeth. The common causes of premature loss are caries, which predominates, early extraction, accident, and constitutional, such as the result of tuberculosis and some other systemic diseases.

The first tooth of a normal child will erupt from five to seven months after birth. All the deciduous teeth, twenty in number, should have erupted in from two to two and a half years, and be in occlusion by three years of age. The lower central incisors are generally lost from six to seven years of age, being the first of the deciduous teeth to be lost, and the last teeth are the cuspids and second molars, at from eleven to

* Read before the School Health and Physical Education Section of the Ontario Educational Association, 1925.

twelve years. These periods are relative, and individual characteristics must be taken into consideration. A child may lose her second deciduous molars at nine or ten years of age, and the loss be normal, due to the development of that particular child. Every deciduous tooth has a succeeding permanent tooth, and the permanent tooth is larger, with the exception of the second deciduous molar. This tooth is succeeded by the second bicuspid, and it is generally slightly smaller.

Let us now assume that a child has lost an incisor tooth before the normal time. What will be the result? As we are all aware, the teeth are situated in the jaws in an arch formation, and at from three to four years of age one in contact with the neighbor on either side. If a tooth is lost, the two neighboring teeth will tend to move in a slanting position towards each other, more or less filling in the space. The deciduous teeth are not only used for mastication, but also as means of retention for holding space for the permanent teeth. Therefore, when a deciduous tooth is lost prematurely, some of the space will be taken by the encroachment of the neighboring teeth, and the normal lateral development of the jaw in the incisor region will not take place. The permanent tooth will erupt either on the labial or the lingual, in a torso position, or may remain impacted. The result of this condition will not only be seen in the one jaw, but also in the opposing jaw, the teeth of which it will not meet in normal occlusion. This will, in time, result in some periodontic lesion. In normal occlusion every cusp on every tooth has a certain and definite relation. From this it can be quite easily understood that a tooth in abnormal relation not only affects the jaw in which it is situated, but throws the opposing jaw out of its proper relation.

The deciduous incisors are often retained beyond their proper period. You have no doubt frequently seen the permanent teeth erupting behind or above the deciduous teeth. This condition is often easily remedied by the immediate extraction of the offending tooth, but should this be delayed for some time, the eruptive force of the permanent teeth may be lost, and it will then be necessary to bring it into position by some artificial means.

As mentioned above, the permanent teeth require considerably more space than the deciduous teeth, and much of the space is obtained by the expansion of the jaws laterally. The two deciduous cuspids and the four incisors are the teeth situated in this particular portion of the maxilla or mandible, and should any one of these teeth be lost prematurely there is very slight chance of the proper expansion being obtained.

This is particularly true in the case of the cuspid. We have all seen these cases of malocclusion, with the cuspids erupting high out of the alveolar process. The early loss of the deciduous cuspids will cause

this condition. The jaws will not receive the proper development, and, in addition to this, there is a tendency for the incisors to become spaced and encroach upon what little space there may be for the permanent cuspid.

There is also a marked tendency for the first bicuspid to move forward, so that there is practically no space remaining for the permanent cuspid when the time for its eruption arrives. This condition is so common that I think particular attention should be paid to the deciduous cuspid in our school work. The importance of this tooth is probably only exceeded by that of the deciduous second molar. In some cases, where there is a lack of space for the permanent cuspid to erupt, it may remain impacted and cause trouble later in life.

There are also frequent cases where the root of the deciduous cuspid is not absorbed. This will result in a prolonged retention of the tooth, and the permanent cuspid will either remain impacted or erupt in some malposition, often pressing against the lateral incisor, causing it to rotate. This condition is not, as a rule, seen in public school children, but occurs later in life. However, if a child of 12 or 13 years of age has a deciduous cuspid firmly in position, he, or she, should be referred to a dentist for a close examination, and, in this way, a condition which might occur later in life, may be prevented.

The first deciduous molars are lost very frequently from caries. When this occurs, the second deciduous molars are inclined to tip forward and the cuspids backwards, partially filling in the space. If this condition is in the mandible, it will often cause the anterior teeth to tip upwards and inwards, resulting in a pronounced overbite. When the first bicuspid, which succeeds the first deciduous molar, attempts to erupt, the parent will often recognize that there is insufficient space, and will have either of the adjacent teeth, the second molar or the cuspid, extracted to make room. I regret to say that a few dentists may be prevailed upon to do this, but, if he refuses, the parent will often have the child work one of the teeth loose. This will result in a still worse condition. The tooth will probably erupt, but the succeeding tooth of the victim will undoubtedly be in a worse condition. I will emphasize again that every deciduous tooth has a succeeding tooth, and, by removing two teeth to allow one to erupt in a position, is just making the condition worse for to-morrow.

The most important tooth in the deciduous set as regards size, mastication and the relation to the eruption of the permanent teeth, is the second deciduous molar. We must use all means within our power to save this tooth, to insure a normal occlusion in the permanent set. As we are all aware, this is generally the last of the deciduous teeth to erupt. It is true, in some cases, that the cuspid will erupt after it, but not as a rule. This is the guide tooth for the eruption of the first per-

manent molar. We generally speak of the first, second and third permanent molars as second teeth. They are second teeth in as much as they belong to the second, or permanent, set, but they do not succeed any deciduous tooth, nor are they succeeded by any tooth. They obtain their position in the jaws by the forward growth of the mandible, or maxilla, as the case may be, and their initial position is governed largely by the position of the deciduous second molar. The first permanent molar will erupt just behind, and in contact with the second deciduous molar. Should this tooth be lost before the eruption of the first permanent molar, the result will be disastrous. The permanent tooth will tend to move forward to get contact with a tooth, and, in some cases, will even reach the first deciduous molar. The movement, in some cases, may be bodily, but is generally in more or less of a slanting position, either of which will result in an impacted second bicuspid and impaired masticating efficiency. Should the second deciduous molar be lost after the first permanent molar is in position, the tendency is for the molar to tip forward and the first bicuspid to tip backwards, closing in the space for the second bicuspid, which will either remain impacted to cause future trouble, or erupt out of alignment.

The damage, however, does not stop here. The second and third permanent molars, erupting in due course, will do so in relation to the first permanent molar, and should this tooth be in a malposition, the others will also assume a malrelation. Thus, these teeth will meet the opposing teeth in a wrong relation, and the masticating efficiency will be greatly reduced. To impress upon you the seriousness of this condition, I will assume that the lower right first permanent molar has erupted in a wrong position, caused by the premature loss of the lower right second deciduous molar. In due course, the lower right second and third permanent molars will erupt in malposition. These three teeth will meet the opposing three teeth, the upper right first, second and third molars in a malrelation, so that there are at least six teeth on the right side in malocclusion. In addition, it is possible that the lower right first bicuspid has tipped backwards, and this will add to malocclusion by throwing the four bicuspid out of their proper relation. The masticating efficiency on this side will be reduced to less than half. In some cases the malocclusion is so extreme on the one side that it will tend to cause a malrelation on the opposite side of the jaws. It is not uncommon for the masticating efficiency to be reduced 30 to 40 per cent. This means that an individual with a normal set of thirty-two teeth could lose ten or twelve of them, and still masticate as well, or better, than a person who has been unfortunate enough to lose a second deciduous molar prematurely. In other words, the premature loss of the second deciduous molar may mean, later in life, the loss in function of ten or twelve permanent teeth.

If this tooth is lost prematurely, it is generally lost from five to eight years of age, just at the time when a child requires a good masticating apparatus. It is, therefore, very important, also, that the tooth be retained for the immediate use of the child.

In closing, I would like to say that I may have exaggerated some conditions. Some children will develop conditions as badly as I have pictured, others less so. We are unable to tell at the time how badly the condition may become. We must, therefore, endeavor to save the deciduous teeth. Modern conditions are such that caries are very prevalent. The diet is not what it should be. Foods are too highly prepared, and the child's jaws do not receive the proper exercise, resulting in a lack of growth.

The parents must be educated where needed, and the children instructed in the care of their teeth, and who are in a better position to do this much-needed work than those connected with the health of school children?

Registry of Trained Dental Assistants



COMPLETE register of graduate dental nurses is maintained at the Royal College of Dental Surgeons, which the Dentists of Canada may feel free to consult should they at any time be in need of the services of a trained office assistant.

Since 1919 the R.C.D.S. has conducted a Dental Nurses' Course, the graduates of which have been rendering faithful service to the members of the Dental Profession. This year's graduate nurses are now available for service; one of them, from Manitoba, would prefer a position in the West. Names and qualifications of dental nurses seeking positions may be obtained from the register at 240 College Street, Toronto.

The course includes instruction in chairside and simpler laboratory assistance (such as casting, waxing-up, vulcanizing and finishing), office management, typewriting, banking and dental office accounting.

Dr. Arthur Ellis employs two dental nurse graduates, and believes there are three phases in connection with nurses who are graduates of the Royal College of Dental Surgeons Nurses' Course which members of the profession would do well to consider.

(1) The nurse gets certain inspiration for her work, knowing she is a member of a recognized body. Along with this, the technical and business knowledge, along with the academic training, are very valuable.

(2) The patients appreciate the value of a trained assistant. They have more confidence in her, knowing that she is a graduate of the R.C.D.S. Nurses' Course. This applies in all her work, such as the

mixing of fillings, assistance in the administration of local and general anesthetics, and the many other duties performed.

(3) The dentist himself feels that he has someone in training to rely on; someone to relieve him of the many details of office routine. Any nurse, who has the training that the R.C.D.S. gives, feels keener responsibility, and is endowed with the same ideals of service as the graduate himself has acquired.

Dr. Ellis concludes with the statement that he has no hesitation in recommending to the profession the employment of these young ladies.

Dr. J. A. Bothwell has, for the past five years, employed a dental nurse, and for a portion of the past year, has had two dental nurses in his office. Dr. Bothwell feels that the trained dental nurse is a very important factor in his own office, and a very real asset to the busy dentist.

Someone has suggested that the training of the dentist in the use of an assistant is a more urgent need than the training of the assistant. Certain it is that many dental practitioners might improve the quality of their service, add to their income, and get more joy out of practice by the simple expedient of the proper use of a trained office assistant.

It would be very helpful for members of the Profession who value the services of their assistants to write a short paper outlining the best way to organize the daily office routine, and suggesting how the dental nurse, or assistant, is of value in the conduct of a dental practice. ORAL HEALTH will appreciate receiving from its readers short articles upon this subject for publication.

How to Kill, Embalm and Bury Any Association

1. Don't come.
2. If you do, come late.
3. If it is too wet, too dry, too hot, too cold, stay at home.
4. When you do come, be sure to find fault.
5. Don't do anything to help.
6. Don't take any part in the meetings.
7. Try not to encourage the officers. They don't need it.
8. Believe everything you hear. Never investigate.
9. Don't pay your dues.
10. If you have a friend who doesn't belong, use your influence to keep him from joining.
11. Consider that the association is conducted for your benefit only.
12. If everything is running smoothly, start something.—*Selected.*

Facial Deformities

MARTIN DEWEY, D.D.S., M.D., *New York City.*

Broadcasted February 19th, 1925, under auspices of the Society for Prevention of Tuberculosis of New York. Station WEAf.

* * *



THE other day I saw a man selling false-faces, and the thought occurred to me that a great many people were going through life wearing faces which did not belong to them. Nearly every child is born with a normal face, which possesses certain characteristics that have been inherited from its parents. Many a fond mother boasts as to the beauty of her child, and, as the result of this belief, every mother thinks her baby is the most wonderful creation in the world. Because of the large number of beautiful children, we find baby shows are featured at country fairs and are even shown in movie weeklies. However, in spite of the many contestants, which make it difficult for the judges to choose the most beautiful child, we find later in life that the difficulty of selecting the most beautiful bathing beauties becomes less of a problem. The great difference between the number of beautiful babies and the number of handsome adults is because somewhere, during the process of growth and development, the beautiful baby is forced, for some reason or other, to assume a face that nature never intended it should wear.

Mother's beautiful angel becomes lost in a group of homely faces that have not had a chance to develop properly, because the proper attention and care was not given to the child during the growing period.

These facial deformities may be only slight, or they may be so extreme as to present a face with very little resemblance to human form. The majority of these extreme facial deformities have only a small beginning, and, if taken early in life, they are very easily corrected, or may be prevented entirely. It is, indeed, unfortunate that the majority of unpleasing faces which we see on the streets, in theatres and subways, could have been prevented, or at least corrected, very easily, if the parents had possessed the proper knowledge in regard to the possibility of having these deformities corrected. We have stated that nearly every child is born with a normal face, and this statement can be enlarged to say that practically every child has a normal face up to the time the deciduous teeth, or baby teeth, are developed. In other words, inheritance tends to produce a normal face, but certain environments tend to produce deformities. By environments, we mean those conditions over which the individual, or the human family as a whole, have some control.

Facial deformities seem to be on the increase, because the majority

of facial deformities are associated with malposition, or maldevelopment, of the teeth. We have often been asked as to what was the cause of so many facial deformities or so many malocclusions; and the answer is that at least 80 per cent. of these developed deformities are the result of "civilization." This may sound like rather a cruel statement, to accuse civilization of producing facial deformities, but, nevertheless, it is true, because civilization is controlled by organized society, and organized society has brought about conditions which are detrimental to the normal development of the teeth. We might change the word "civilization" as being the cause of malocclusion, and in place substitute the word "disuse," which, from a biological standpoint, means that any organ, in order to be developed, *must be used*. Civilization is again responsible for this "disuse," because the type of food which the average youngster eats is so prepared that it is unnecessary for the child to masticate its food; consequently, about the time the deciduous teeth have erupted, the lack of use has brought about a malocclusion of the teeth and an underdevelopment of the face and jaw, which produces a very noticeable deformity later in life. Another evil effect of disuse, or, rather, lack of use, which has a bearing upon facial deformities, is because of improper food, and the teeth are not properly cleansed, and, consequently, decay early and are often extracted before they should be. The early loss of the deciduous teeth results in a lack of development of the bony structure supporting the teeth, and, in turn, again produces facial deformities.

The early loss of the deciduous teeth in the upper arch often results in the permanent incisors taking a position behind the lower incisors. At this time in life the deformity is not great, and can be very easily corrected. However, if the malposition of these teeth continues to remain abnormal, the use to which the teeth are placed results in an overdevelopment of the mandible; the chin becomes prominent, and we have a great facial deformity, which is very unpleasing and very difficult to treat later in life. It is also true that extreme facial deformities are often produced by seemingly innocent habits. Thumb-sucking and the use of pacifiers may produce protrusion of the upper teeth and lack of development of the lower arch, which again produces a facial deformity which is familiar to all. It is that type of facial deformity where the upper front teeth protrude to such an extent that the first thing you see when you meet a person is the front teeth. These deformities are also associated with abnormal breathing, because it is a well-known fact that the mouth-breather presents a deformity of the face that is well known to medical men.

Mouth-breathing is often produced by the hypertrophied lymphoid tissue, located in the back part of the nose, in what is known as the nasopharynx. The development of this lymphoid tissue closes the nasal

space and the child is forced to breathe through the mouth. You may think that it would make little difference in regard to the face, whether the child breathes through the mouth or nose, but we find there is a great difference in the act of breathing, which difference is responsible for one of the most unpleasing facial types. In order for the nose and the upper part of the face to develop, the air must pass through the nasal cavity, which, by so doing, it exerts a stimulating influence on the tissues lining the nose, and also exerts mechanical pressure on the lateral walls of the nose, which causes the nasal cavity to develop laterally, antero-posteriorly and vertically.

In the nasal-breather, the mouth is kept closed, and the tongue occupies the whole of the oral cavity; also as soon as we cease speaking, if we breathe through the nose, the mouth is closed, and the individual unconsciously swallows, which brings the soft palate and tongue in contact with each other, and a vacuum is created between the roof of the mouth and the tongue. As a result of this vacuum, the mandible, or lower jaw, is held in its proper position, and receives the proper function, which causes the lower jaw and chin to develop as they should. If the individual is a mouthbreather, facial deformities develop; the upper dental arch remains very narrow, because the tongue fails to exert any lateral pressure on the upper arch; the lips separate, so there is no restraining influence on the upper front teeth, and, consequently, they protrude. This protrusion is made worse, because the lower lip drops under the upper incisors and forces them forward. The lower jaw drops downward, the muscles of the neck and throat sag because of the loss of atmospheric pressure; the chin remains underdeveloped, and, in extreme cases, we have a facial deformity which gives the individual the appearance of having swallowed his chin. It was probably from this type of chinless individuals that the famous cartoon of Andy Gump was originated. The early appearance of this type of facial deformity may be slight, but if the abnormal breathing continues, the deformity grows worse as the individual grows older.

It is this type of facial deformity which has been charged to inheritance, because one individual so greatly resembles another; consequently, if these facial deformities are present in any one of the family, it would be very easy to consider the deformities had been transmitted, when, as a matter of fact, the child resembles Aunt Mary only because Aunt Mary and the child have been subject to the same pathological conditions, and, consequently, have developed the same type of facial deformities.

Another very common cause of deformities of the face is the use of nursing bottles. It has been proven by careful examination that 80 per cent. of the bottle-fed babies suffer from facial deformities. This is because of the persistence of the sucking habit carried over a longer period of time. If the child is allowed to suck on rubber nipples, he

fools himself, and, consequently, while he is fooling himself, he fools his parents by developing a facial deformity.

We have previously spoken of foods as playing a part in the production of malocclusion, because they are often prepared in such a manner as to make it unnecessary for the individual to masticate. The faulty diet not only produces malocclusion and facial deformities, but it fails to supply proper nutrition to the individual, and, consequently, systemic disturbances arise, which also influence facial developments. These deformities are more to be regretted because they are the result of civilization, and can be entirely eliminated by proper control and proper co-operation on the part of the parents.

Orthodontia is that science which has for its object the correction of malocclusions of the teeth. Malocclusions of the teeth are various malpositions of the teeth which interfere with function and development. The teeth have various functions in the human family, and it is only when the teeth occupy their normal position that we can expect the child to develop a normal face. Orthodontia can do more to correct the terrible facial deformities and maldevelopments that we see on the street, and in every walk of life, than any other science. Individuals with protruding teeth and deformed jaws, that almost destroy every resemblance to the human face, could have been successfully treated during the period of growth. The proper treatment of the facial deformity changes the person from a wall-flower to a social ruler. The amount of benefit that can be done these individuals is only limited by the age at which the treatment is begun.

The correction of facial deformities should always be undertaken as soon as any variation is noticed. The process used in correcting those facial deformities is one of controlling and stimulating the growth of the various parts of the face so as to supply, by treatment, that which nature has evidently failed to produce.

Malformations of the face always begin by a small deviation from the normal. As a result of this small variation, the functions are interfered with and the condition grows worse as the individual becomes older. To obtain the greatest benefit from Orthodontia treatment, the child should be taken to an Orthodontist as soon as any deviation from the normal is noticed. While Orthodontic treatment offers the greatest possibilities for the child, it must not be forgotten that a great many deformed faces which we see in adults can be greatly benefited by proper care. Wonderful results have been obtained after adult life, but the treatment extends over a longer period, and the normal facial outline is not always obtained, although greatly improved.

If your child is not as beautiful as you think it should be, or if you have noticed the face becoming less pleasing than it formerly was, remember that Orthodontic treatment is the science that is able to correct this maldevelopment and give your child the face that nature intended it should have.

Recreation—With Special Reference to Golf

JAS. G. O'NEILL, D.D.S., WINDSOR.



RECREATION, no matter what form it may take, is a very important item in the professional man's life. Nothing is more important to the dentist than the form of exercise or deviations that he employs to get his mind and body away from his work. Dentistry is the most confining of all the professions, and we know of none more tedious to the muscles, nerves and brain. We must relax as much as we can, or else our lives will be short and none too merry. We must constantly remember that all of us owe a strict duty to society in maintaining as much bodily health as is within our power, so that we may better serve those whom we are called upon to minister to and give of the best that we have. This can only be done by maintaining a sound body, and with it goes a sound mind. Some form of physical exercise should be indulged in by every member of the profession.

Recreation in the form of physical exercise cannot be standardized, nor can any one definite form be selected. What might be admirably suited for one would be positively fatal for another. A strenuous game of hockey at the age of forty-five would do one more harm than good. Our physical exercise should be selected with judgment and common sense.

The field is large, and the trail is wide open in the matter of selecting our games. The younger men of the profession who have just graduated from college can take part in the more strenuous games of hockey, football and tennis; but it is not they who need the physical exercise so much as the men who have been "plugging along" for some years, and in the early part of the day commence to feel weary. The recreation for these men should not be of the strenuous type.

We know some men of the profession who never miss their daily horseback ride, and those who grow beautiful flowers, and others who occasionally are stung when their bees swarm. These are all admirable avocations and afford those so disposed some recreation and as much pleasure as the little boy at his first circus. There are those amongst us who love to get in the woods in the autumn and shoot the odd partridge, and wander down the clear streams and play with the speckled trout, and occasionally hook one. We know a man of our profession who lives all through the year in pleasurable anticipation of the time when he can hie away to the great forests of the north and the west in quest of caribou. And when he returns with his spoils he dreams of the woods and the game he knows so much about until

another year rolls round. Many of our men shoot an occasional moose, and quite a few have venison from the deer that they have shot.

When that season of the year comes when the small and big game are flirting with death from some hunter's gun, the woods with their variegated colors of foliage are a glorious treat for the tired eyes. The apprehension of either the neophyte or the experienced hunter in the woods is an excellent stimulant for the tired body and nerves; but what a glorious sensation when you first spy your prey and are successful in carrying out your objective! Then is the time when the heart beats firmly and quickly rushes forth abundance of rich red blood, in order that the tired and broken-down tissues may be renewed.

But have you ever stood upon a tee, and from a high elevation your eye first fell upon the wonderful landscape for many miles round? And soon that optic of yours took in a beautiful green sward banked on either side by foliage of every description, and you gloried in the wonder and prodigality of nature; and suddenly your big perspective was reduced to a very tiny one, and it was some lettering on a small, white box filled with sand: "Hole No. 2—575 yards—Par 5," and you picked out the sand and teed up your favorite ball, and before you took your stance you looked down the course and saw a nice little stream about one hundred and seventy-five yards away, and far beyond a red flag flapping in the gentle breeze; and, disregarding all the things that Hagen, Evans and Barnes have said, you carry your club through the air and send it straight and true and low, and it carries well beyond the water hazard and continues running on toward the flag. Well, if you have not, then you have missed one of the finest thrills known to the sons of Adam and the daughters of Eve.

Golf is one of the sanest forms of exercise for the men of the Dental Profession. One can play a solo or play it in flocks. It can be made as strenuous or as mild as one likes. One may weed the garden for hours and get intensive exercise; but the mental and physical reaction afterwards is like the man suffering with a fractured limb. One may go out on a golf course and be tired when he starts, and walk five miles and come to the nineteenth hole and have his shower and feel like a shooting star.

Only a few months ago one of our prominent members of the profession was lecturing to the students of the School of Dentistry in Toronto, and on this special occasion he got on the topic of the comparatively short lives that the men of our profession live. At this point a fire of enthusiasm struck him, and he exclaimed: "Boys, when my time comes to pass out of this big picture I hope I shall be standing on a tee, and that I have just made a drive of four hundred yards, and then I shall go out very happily." What an ideal way to close the big

show! Years ago, when this same man was first taken out to one of the clubs by a friend and given a driver, he was told to hit it, but not to try and kill it; he has never made a better drive since, and from that day to this:

"He is seldom home for supper, if he does come he is late;
The kitchen floor needs painting, but the kitchen floor must wait.
The screens are in the attic and the storm door should come off,
But Father's only rooming here, now that he's playing golf.
He's ceased to dig the garden, and he's packed the tools away;
He says the maid can plant the flowers we want some day.
At those who toil for exercise he's started in to scoff,
The stylish way to get it, Father says is playing golf.
He used to call men foolish when they raved about the links,
But since he's been converted, it's a splendid game, he thinks.
He is out there every Sunday and each afternoon he's off;
Ma's a widow and we're orphans since he's started playing golf."

Golf is a science, the study of a lifetime, in which you may exhaust yourself, but never your subject. It is a contest, a melee calling for courage, skill, strategy and self-control. It is a test of temper, a trial of honor, a revelation of character. It affords a chance to play the man and act the gentleman. It means going into God's out-of-doors, keeping close to nature, fresh air, exercise, a sweeping away of the mental cobwebs, genuine recreation of the tired tissues. It is a cure for care and an antidote for worry. It includes companionship with friends, social intercourse, opportunities of courtesy, kindness, and generosity to an opponent. It promotes not only physical health, but also moral force.

There is a brotherhood of the green swards, wood foliage and blue skies. Its meetings are being held from early spring until late autumn. It is a unique craft, whose members dedicate themselves to getting closer to nature for exercise, and in so doing they love nature the more. And every member is a life enthusiast. For *once* to hit a golf ball is always to be a follower of the ancient and honorable game.

To this brotherhood all members of the Dental Profession should belong. And as we learn to know golf better, and dissipate our troubles and worries in long days and still twilights in the open on the links, we shall be better dentists and better citizens.

To all of you then who, with your bag full of niblicks, brassies and spoons, may "go through us" on the long rolling green swards, a greeting. Here's to the golfer's trail, and a good shower and whatever you may desire ahead; to sunrise and sunset, and the afterglow, to air and exercise and a night's sleep well earned. And here's to you and us. May our fairways cross and our hazards never be too difficult to negotiate!

What Should Be the Length and Content of a Modern Dental Course?

WALLACE SECCOMBE, D.D.S., TORONTO.



THE Dental Profession generally, and dental teachers particularly, are eagerly awaiting the report covering the study of dental education which has been in progress since 1922, and being made by Dr. Wm. J. Gies on behalf of the Carnegie Foundation.

In discussing this question, it is well to keep in mind that the plan best suited to one university might be impracticable or less desirable in another. In the democracy of education, an atmosphere of freedom is vital to growth. So long as we maintain standards that are equivalent, each unit should be allowed to adopt the particular plan best suited to the local conditions, and proved by experience, to train and develop the highest possible type of graduate.

During the past five years, there has been a definite movement toward the adoption of the so-called predental year. The only schools to be recognized by the Dental Educational Council of America in 1926 as of Grade "A" standing are those that will require a five-year period from high school graduation (arts matriculation) to dental graduation. Difference of opinion, however, has developed concerning the best division of these five years. Some advocate one year predental, covering prescribed subjects, the majors being science, and taken at any arts college of university grade, followed by four years in a dental faculty. Others advocate two such years of predental work, followed by three years in a dental faculty. Others, again, are in favor of the entire five-year course being given under the control of the dental faculty.

Under all three plans, practically the same subjects would ultimately be covered. For convenience, these various plans are referred to as the 1-4 plan, the 2-3 plan, and the 5-year plan. The only conditions under which the last could be justifiably undertaken would be that the dental faculty is housed in close proximity to the other university faculties, and that the students would be able to breathe something of the university atmosphere and have the privilege of close association with the students of other faculties in all of the undergraduate activities of the university.

New York State has given notice of requiring two predental years and four years in the dental faculty, commencing 1926. Already the dental department of the University of Buffalo requires this standard, and the new University School at Rochester has given notice of the requirement of three years of predental working preparatory to enrolling for four years in dentistry.

McGill University and the University of Montreal, for session 1925-

1926, will require two full years in the Faculty of Arts in any recognized university, from all candidates who intend to practise in the Province of Quebec, and, commencing session 1926-27, every candidate for admission to the Faculty of Dentistry must have completed two years of predental work in the Faculty of Arts of a recognized university.

At the University of Toronto, the premedical work is given in the Medical Faculty, and in place of having adopted the 2-4 plan in medicine, as obtains generally in other universities of Canada and United States, a six-year course has been developed. The same plan was followed in dentistry and the predental work has been given in the Dental Faculty under the five-year plan. In both medicine and dentistry at the University of Toronto, these courses have been in operation for six years, having commenced in September, 1919.

The advantages of the five-year plan in dental education may be summed up as follows:

1. When preprofessional work is taken in various colleges of different types and varying standards, the necessity may arise in the first year for a review of the predental work, that there may be established a common foundation upon which to build. An earlier commencement upon the same standards is permitted, and better co-ordination of the course is attained when the five years are taken under the supervision of the same faculty.
2. Science and cultural subjects are taught by university professors in their respective subjects with a view to development of a broader type of citizenship and also a deeper realization upon the part of the students of the scope of their chosen profession. The purely professional faculty sometimes becomes specialized and narrow in its outlook.
3. Dental applications in science subjects create a greater interest in the student, which leads to a higher standard of proficiency, and overcomes any tendency to consider biology, physics, chemistry, and even physiology, as necessary subjects for purposes of examination, but of no practical value in the practice of dentistry.
4. The five-year course permits development of manual skill coincident with studies in cultural subjects. Experience has shown that graduates in arts enrolled in a three-year dental course seldom attain efficiency as operators in a course of that duration. A five-year course enables the faculty opportunity to produce more efficient operators, because of the longer period of time over which digital training extends.
5. The fourth and fifth years are made, primarily, clinical. This gives the student adequate time in the infirmary in actual practice.

and in attending clinics, where he may strengthen his deficiencies and extend his knowledge in the various phases of dentistry. He may thus gain sufficient experience to enable him to attain greater efficiency as an operator before graduation.

THE FIVE-YEAR COURSE CONFORMS TO FUNDAMENTAL PRINCIPLES OF EDUCATION*

First—The importance of teaching the application of a subject at the same time as the theory.

"Only application tests, and only testing confers full meaning and a sense of their reality."—John Dewey.

"Greatest incentive to acquisition of knowledge is interest."—G. Elliot Smith, Manchester.

Second—The extension of science subjects throughout the course, rather than their concentration in one or two years.

"It is necessary to recognize the importance of continued study of the fundamental sciences throughout the medical course, in order that the practical significance of each chapter of these sciences may not be missed."—Medical Journal of Australia. Report submitted to Deans of Faculties of Medicine in Australia.

Third—The correlation of the teaching with clinical experience. Need for more prolonged clinical experience, and the beginning of it earlier in the course.

"What is wanted is that pupils shall form the habit of connecting the limited information they acquire with the activities of life and gain ability to connect a limited sphere of human activity with the scientific principles upon which its successful conduct depends. The attitudes and interests thus formed will then take care of themselves."—John Dewey.

The problems of medical education and dental education are so similar that the following excerpts from a letter written by the Dean of a Medical Faculty, expressing dissatisfaction with a divided course, are of interest:

"Broadly speaking, in medical education at the present time, we have a block of six years, including two so-called premedical years, two so-called preclinical years, and two alleged clinical years. . . . It appears to me quite extraordinary that it (the medical curriculum) has never been looked at as a concrete whole, and that it has been allowed to become subdivided into three more or less separate compartments. If it is intended that this should be a progressive type of education, leading to certain results with any regularity, it appears to me that it ought to be considered as a whole by people whose knowledge of the business of education is fairly complete. . . . It would appear to me of first-class importance that the medical student should be in intimate contact with sick people for at least five out of the six years, in the hope that he might, in that brief period, master the general principles of the behavior of the human animal under these conditions . . . important that he should have considerably more knowledge of the ascertained facts in regard to social problems and economic problems, and whereas any attempt to deal with these subjects is now confined to the first two of the six years, they should more properly be taught either throughout the curriculum or in the latter part of the course. . . . I am also impressed with the rather different standards of work which exist in the first two, as compared with the last four of these six years. In most

*Quotations taken from brochure by E. Stanley Ryerson, M.D., C.M., F.A.C.S.—"Co-ordination of the Courses as a Means of Increasing the Efficiency of the Medical Curriculum."

of the literary colleges where the first two years' work is done, it is substantially on a par with other undergraduate work, which is notoriously slackened and of poor quality. The sudden pitch-forking of these ill-prepared people into the pretty stiff medical school curriculum results in an abnormally high casualty list and second-rate product. . . . It, therefore, appears to me that we should be well advised to regard the whole of these six years as one block of time, subdivided in such a way as to equalize the burden and keep constantly before the mind of the student that he is in fact engaged in the business of preparing for the practice of medicine."

Similar arguments might be used in advocacy of the pre dental year being given in the Dental Faculty, the teachers in the science and cultural subjects being appointed as regular members of the Dental Faculty.

An Ambassador's Letter to His Infant Grandson



IN the book, "The Life and Letters of Walter H. Page," full as it is of a wealth of wisdom, wholesomely and charmingly expressed, we came across the following interesting letter.

To understand its humor as well as its wisdom, one must picture, on the one hand, the great American ambassador to London in the evening of his life, wearing away his energies in the strenuous duties of his office during the war, and, on the other hand, the helpless infant of less than one year, whose life as yet is consumed only with two activities, nourishment and sleep. The letter was written by the late Mr. Page to the grandson on the occasion of his first Christmas. This is it: "You have discovered, and my experience confirms yours, that a perpetual self-consciousness brings most of the misery of the world. Men see others who are richer than they; or more famous, or more fortunate—so they think; and they become envious. You have not reached the period of such empty vanity, and I have long passed it. Let us, therefore, make our mutual vows not to be disturbed by the good luck or the good graces of others, but to continue, instead, to contemplate the contented cat on the rug and the unenvious sky that hangs over all alike.

"This mood will continue to keep our lives simple. Consider our diet. Could anything be simpler or better? We are not even tempted by the poisonous victuals wherewith mankind destroys itself. The very first sound law of life is to look to the stomach; for it is what goes into a man that ruins him. By avoiding murderous food, we may hope to become centenarians. And why not? The golden streets will not be torn up, and we need be in no indecent haste to travel even on them. The satisfactions of life are just beginning for us; and we shall be wise to endure this world for as long a period as possible.

"And sleep is good—long sleep and often; and your age and mine permit us to indulge in it without the sneers of the lark or the cock or the dawn."

Lambton County Health Week

W. J. BELL, M.B.

Deputy Minister of Health, Province of Ontario.



IN the bulletin of the Detroit Department of Health (December 22-23), the following words occur: "The public as a whole does not yet realize" This is just as true of any other community as it is of Detroit. For this reason, it may be accepted as expedient to devise means of occasioning what may be termed a "Health Revival" in a community, on which, for special reasons, it seems desirable to concentrate.

A case in point, is the city of Sarnia, whose Medical Officer of Health sent to the Provincial Department a special request for assistance in expanding his work. The invitation presented an excellent opportunity to undertake an interesting experiment in public health education in what might be regarded as a suitable community.

Sarnia, a city of about 15,000 inhabitants, is the county town of Lambton, a county in southwestern Ontario, fronting on the River St. Clair, having an area of about 1,000 square miles and a total population, approximately, of 52,000.

The experiment was undertaken as a departmental venture, and was approved and strongly supported by the Honorable Dr. Forbes Godfrey, Minister of Health for Ontario.

It was submitted to the members of the Lambton County Medical Association and the Lambton County Dental Association, who, after due consideration, approved it and promised their active support. The societies more than made good their promise of co-operation.

Through the Lambton County Medical Association, the parent body, the Ontario Medical Association, was approached, and the prospective programme and plan of work for the Health Week was considered by them. They found the activities of the week so arranged that, while a week of public health education was being promoted, the interests of the medical practitioners, as individuals, and as a group, were being satisfactorily protected. They, accordingly, gave their endorsement and approval, so that the Lambton County Health Week was conducted with the approval of the Ontario Medical Association and under the auspices of the Lambton County Medical Association and the Lambton County Dental Association. It was organized and directed by the Provincial Department of Health.

The business men of the county, through the Sarnia Chamber of Commerce, were interested, and contributed active support, both moral and financial.

The social and fraternal organizations of the county, through their representatives, at a public meeting, endorsed the idea and pledged their hearty co-operation. These representatives were divided into groups, and each group selected one of the days of the Health Week, which day was to be the special day for the co-operation of that group. They functioned.

The work was started about the first of October, and by the first of November, the initial arrangements had been completed, and we were ready to commence the necessary preparatory work in the county. It was decided to divide the county into small sections and allot to the work one public health nurse per section, giving each about the amount of territory she could cover and the number of families with which she could deal in two months, so that from the nursing end the county had been fairly well surveyed and a considerable amount of intensive work done by Christmas. Following that, four nurses were assigned to the work in the city of Sarnia, where one public health nurse and one school nurse had already been working for about three years. It must not be inferred that we suggest by this that a complete programme of public health nursing had been put in operation in Lambton County; the time occupied was too short for that. But we were able to make a satisfactory survey of the county, to do a certain amount of active health work and to issue widespread propaganda relative to the proposed Health Week.

In addition to the nursing work, the District Officer of Health conducted a series of meetings at fifteen rural points in the county. The programme consisted of moving pictures, music by local talent, and a health address by the District Officer. These meetings were well attended, an average of 60 per cent. of the adult population of each place being present. To promote the interest of the medical and dental practitioners, and to familiarize them with the proposed programme, each was visited individually in his own office by the District Officer of Health, who was able on these visits to straighten out misapprehensions and misinterpretations liable to arise in a venture of this nature. At the suggestion of the Medical Officer of Health of Sarnia, talks were given in the schools and to church organizations, on general public health and oral hygiene, by the practising physicians and dentists of the county; fully 55 per cent. of the physicians and dentists responded to this suggestion, and 75 per cent. of the school population of the county was reached.

Advertising of the Health Week, and health instruction associated therewith, was carried on by means of paid front-page newspaper articles once a week, and short readers in the local columns of all papers in the county—five rural weeklies and one daily, "The Sarnia Canadian-Observer." In addition, the "Observer" carried one short front-page

reader daily. The various editors were very generous in their editorial comment.

A feature of the Health Week publicity was the special supplement issued by the "Observer," as a major section of the regular issue of January 17th, the Saturday immediately preceding Health Week. Snappy headings on the pages of the supplement, associated with photographs, attracted attention to the prominent speakers of the week, and well-written articles dealt in a pertinent way with some very timely health topics appearing on the programme of the week, which was outlined in detail, and readers were urged to take every advantage of the opportunity presented of acquiring authoritative information on the safeguarding of health.

The issue of the Health Week Supplement assured us that the propaganda had gone over, because advertising, unusually profuse in this issue, carried, in every case, reference to Health Week and endeavored on health grounds to demonstrate in each instance the importance of taking the advertiser's advice.

Posters, plain and illustrated, were displayed over the whole county; and in the churches the clergy made special reference to the Health Week.

The official programme consisted of twelve pages and cover, 6" x 9", printed in two colors. On adjacent pages was outlined the clinical work of each day opposed to the programme of the evening meeting; in addition, the double page for each day carried health aphorisms, one short health article, and the list of local organizations sponsoring the work and evening meeting of that particular day. The programme also carried a photograph of the Minister of Health and a page outlining the purposes of Health Week. It might be advisable to reproduce that outline in this article:

PURPOSES OF THE HEALTH WEEK.

1. To disseminate information relative to health protection and disease prevention.
2. To create an opening for active public health work.
3. To promote a closer relation and a better understanding between the public and the medical and dental professions.
4. To stimulate a demand for medical and dental health service on the part of the public.
5. To introduce a rational, free medical and dental service to special classes in the community, where the same is indicated and may properly be rendered.
6. To promote the direction of matters and services distinctly medical and dental by the medical and dental professions, respectively.

An interesting combination of health publicity and commercial advertising was evident on the main business streets of Sarnia during Health Week. A considerable number of the merchants very generously gave valuable window space for the display of health exhibits, prepared and set up by the Department of Health and the local Dental Association, while many others dressed their windows from material out of their own stock, stressing in each instance the value of the articles shown, from a health point of view.

We were fortunate in securing ideal premises for the public work of the Health Week. The clinical work during the day was carried on in Turner Hall, an annex to the Central Methodist Church, having two large auditoriums, used as waiting-rooms, and twenty-three smaller rooms, of which fourteen were used as private rooms for physical examination in connection with various clinics.

The evening meetings were held in the auditorium of the Technical School, a commodious hall, seating upwards of 1,200.

After conference with the local medical and dental groups, it was decided to conduct eight special types of clinical work:

1. Children's Clinic, to include infant, pre-school and school child.
2. Adult Medical Clinic.
3. Occupational Disease Clinic.
4. Chest Clinic.
5. Orthopaedic Clinic.
6. Eye Clinic.
7. Dental Clinic.
8. Ear, Nose and Throat Clinic.

It will be noted that the first five are what may be termed diagnostic clinics, and the last three treatment clinics. Special arrangements were made for attendance of the public, as follows:

(a) In the children's general Medical and Occupational Disease Clinics, examination was made simply on request of the individual or the parent or guardian.

(b) Chest Clinic—Notification regarding patients coming to this clinic was sent by the family physician to the clinician, who allotted a day and hour for the examination of each case.

(c) Dental; Ear, Nose and Throat, and Eye Clinics—The three treatment clinics. Persons coming to these clinics were obliged to come first to the Children's, or General Medical Clinic, for complete physical examination, and to bring with them a letter of reference from their family physician, as follows:

Physician's Reference.

I hereby certify that I am the attending physician of, or, in the family of

- Please examine this applicant, and*
(a) refer him back to me with recommendation for treatment.
(b) refer him to the treatment clinic of the Lambton County Medical Association for treatment.

.....M.D.

NOTE: Physician will strike out (a) or (b) to indicate his wishes in the case.

This letter had a double purpose, in that (1) it placed the responsibility for the giving of treatment in individual cases on the family physician, and (2) it safeguarded the free treatment service from imposition.

It was decided that at the diagnostic clinics the patient would be given a complete examination, that no treatment would be administered, that no diagnosis would be given to the patient, nor would recommendations for treatment be suggested. Sufficient time was to be taken to permit of a thorough examination in each case and a complete history record on which a summary of the findings and recommendations for treatment in the case would be entered.

A copy of the findings and recommendations was made on a form letter, copy of which follows:

Date.....

Dr..... Re.....

Address.....

Dear Doctor,—

The person whose name appears above came to the clinic to-day and received an examination.

Report of examination is not given to the person examined, but is sent to the family physician, together with any recommendations regarding treatment.

This memorandum is not submitted in any arbitrary way, but simply for your consideration—to be accepted, rejected or modified, as your judgment and your personal knowledge of the case may direct. The findings and recommendations are as follows:

*.....
(Signature of Examining Physician.)*

This letter was sent by mail to the physician designated by the person examined as his attending, or family physician. This procedure made it necessary for the person examined to go to the physician to obtain the results of the examination, and thus contact between physician and patient was promoted. The physicians agreed that no expense would be attached to this office visit.

In advertising the general medical clinic, a special point was made of the annual physical examination; in the Occupational Disease Clinic, the illness hazard in industry was stressed; in the Chest Clinic the special point was the tuberculous contact, keeping the idea of prevention prominent, making treatment the secondary consideration.

About 70 per cent. of the physicians and dentists of the County of Lambton, who, by the way, are an exceptionally up-to-date, well-informed group of practitioners, volunteered their assistance in the work, and their services were utilized in conducting the various clinics.

A feature of the work of the week was a series of special clinics, conducted by consultants from the outside, supplied for the Health Week by the Ontario Medical Association. This feature provided the practical opportunity of demonstrating the interest of the Provincial Medical Association in the Health Week programme.

To the public it presented exceptional facilities for clinical consultation during the week, and for the medical profession it provided what practically amounted to a short post-graduate course of one session in each of the following branches, for which the special consultants were supplied, viz.: Pediatrics, Internal Medicine and Occupational Disease, Orthopaedics, Tuberculosis, General Surgery (diagnosis).

Patients were accepted in these special consultation clinics on the written request of the family physician, who, when at all possible, was present at the examination of the case, to present the history of the case, the X-ray photographs and the report of special examinations of the urine, blood, etc. One hundred and seven of these cases were dealt with in the special clinics during the week.

The total number dealt with at the clinics, other than the special consultation clinics, was 1,058. More might have been dealt with, as many more cases were presented for examination, but it was felt that a thorough careful examination of each case accepted was more important than a large list of cases.

A further feature of the Health Week of special interest to the physicians was a medical round-table, held each night during the week. The chairman of the local clinical society was the presiding officer. The discussion was based on the clinical material presented at the special clinic during the day, and was led by the special consultant at that clinic. After the material suggested by the clinic of the day had been disposed of, the discussion was opened to permit of the introduction

of any medical subject included in the special field of the consultant of the day. While active treatment was thoroughly dealt with, the preventive aspect was kept prominently before the physicians in all these discussions, and the round-table was voted a very important, interesting and instructive part of the work of the Health Week.

Unquestionably, this feature must broaden the doctor's vision of his field of activity and cannot fail to stimulate a better medical service in the community.

Along the same line a special clinic on the new treatment of Periodontitis was provided for the Dental Association.

During the week five public meetings were held on successive nights. The addresses were of an exceptionally high order, and the attendance was even better than we had hoped for. On the first night nearly 1,400 people were in the hall and almost as many more were turned away, unable to gain admission. The average attendance for the five meetings could be conservatively estimated at 1,050 per night. Various aspects of public health and preventive medicine and dentistry were presented by outstanding authorities and keen interest was manifested.

The total cost of the Health Week, exclusive of salary and expenses of the regular staff, amounted to approximately \$2,000.

Four important points:

(1) During the week a tremendous amount of public interest in health, and public enthusiasm for better health, was aroused in the whole of Western Ontario. This continues and creates an excellent opening for a further programme of public health, which will be inaugurated in the county at an early date.

(2) New relationships were established:

- (a) Between the public and the Department of Health.
- (b) Between the Department of Health and the practitioners, medical and dental, individually and collectively.
- (c) Between the medical profession and the dental profession.
- (d) Lastly, and very important. Between the Department of Health and the Ontario Medical Association.

The establishment of these relationships is worth more than the total cost of Health Week.

(3) A considerable number of the 143 chest cases examined showed evidence of active tuberculosis. The economic value of finding these cases early will be understood when we realize that in the year 1922-23, the Province of Ontario, as a province, paid out in connection with tuberculosis, including mothers' allowances connected therewith, nearly \$530,000; and, in addition to that, the amount paid out by municipalities and others for public ward patients was almost \$940,000.

This was for 2,624 cases, an average of approximately \$560.00 per case.

(4) The group work of the physicians and the dentists in the Health Week clinics, the contact with one another and with the special consultants from outside the county stimulated those taking part to high ideals of medical and dental service.

From the foregoing we feel that the Health Week is justified on economic grounds. It is justified on account of public health education and instruction through the clinics and evening meetings; on account of actual personal medical service, both preventive and therapeutic, to individuals at the clinics of the week, and, further, on account of the development of the local medical and dental channels for health instruction and improvement.

It can be further justified as presenting to the organized department of government an opportunity of pointing out, or leading the way, to better health and of showing to the public services available to that end.

NOTE: A few copies of the official programme are available and will be mailed on request to any one interested.

“Jazz” English



ROBERT BRIDGES is an earnest advocate of the work of the Society for Pure English. “The ideal of this association,” according to Dr. Bridges in the Cornell Alumni News, “is both conservative and democratic. It would aim at preserving all the richness and differentiation in our vocabulary, its nice grammatical usages, its traditional idioms, and the music of its inherited pronunciation. It would oppose whatever is slipshod and careless, and all blurring of hard-won distinctions, but it would no less oppose the tyranny of schoolmasters and grammarians, both in their pedantic conservatism and in their ignorant enforcing of new-fangled rules, based not on principle, but merely on what has come to be considered ‘correct’ usage.”

“The ideal of the society is that our language in its future development should be controlled by the forces and processes which have formed it in the past; that it should keep its English character; and that the new elements added to it should be in harmony with the old.”

We suggest for the consideration of the Society the most recent outburst of contagious anarchism in common speech, to which attention has been called by President Southwick of Emerson College: “A dear little flapper friend of mine found complete and satisfying self-expression for all that favorably affected her in the adjective ‘grand’—whether she had in mind poem, salad, or sunset. . . .

"The same sort of mental indolence has caused the phrase 'you bet' to break out like a rash all over the country. Multitudes who have no wager of any sort in mind express all affirmatives and agreements in 'you bet.' 'Please bring me lamb chops.' 'You bet.' 'Mark me for a six o'clock call.' 'You bet.' 'It looks like rain.' 'You bet.' 'Do you enjoy Browning?' 'You bet.' 'Does this street lead to the station?' 'You bet.' 'Will you be my wife?' Maybe another 'you bet.' It is 'you bet' *ad nauseam*.

"Thousands of good souls use word or phrase as in camp they might use one pan in which to fry, bake, stew, fricassee and boil, and then wonder maybe why everything tastes alike. 'Plumb-laziness' they call it down South—a just phrase and a good one—for it means to be lazy straight down through. Tangle-footed ragtime thinking, together with a facile imitation which is a substitute for thinking, accounts for most of the slouchiness that offends our taste."

Good manners, correct speech, and honest and fair judgment are the qualities which President Farrand told Cornell freshmen, at the opening of the college year, that they should acquire in their four years at college.

"There is no virtue whatever in being a 'rough-neck'," said Dr. Farrand. "What men most admire, in college as well as afterwards, is a gentleman. Any seeming admiration for rough qualities in a man is not genuine."

He further declared shoddy speech one of the most shocking things apparent among college men throughout the country. Inability to use the English language correctly is a positive drawback in any walk of life, and a person who has not learned to express himself correctly by the age of twenty-five or thirty, he said, finds it practically impossible to rid himself of his bad speech habit.

American Society of Oral Surgeons and Exodontists



THE Seventh Annual Meeting of the American Society of Oral Surgeons and Exodontists will be held at the Brown Hotel, in Louisville, Kentucky, on September 18th and 19th, 1925, the Friday and Saturday preceding the meeting of the American Dental Association.

All oral surgeons and exodontists in Canada are cordially invited to attend this meeting.

JAMES A. BLUE, President,
703 Empire Bldg., Birmingham, Ala.

EARLE H. THOMAS, Secretary,
30 N. Michigan Ave., Chicago.

Preventive Orthodontia for the General Practitioner*

BY G. VERNON FISK, D.D.S., TORONTO.



IN a paper read before the Academy of Stomatology, Philadelphia, in April, 1916, entitled "The Prevention of Malocclusion," Dr. J. Lowe Young states: "That Prevention is preferable to cure is conceded by all who possess the true professional spirit. Thus, it would seem to be the duty of the Dental Profession to prevent malocclusion in the rising generation." In adopting this policy, one of the most vital questions for the practitioner to determine, is the time when it first becomes evident that the development of the dental arches is not taking place normally. Experience has shown that this is very often prior to the time of the eruption of the permanent teeth.

As you are aware, the twenty deciduous teeth under normal conditions are erupted in contact with each other at the age of three years and, in the vast majority of cases, occlude properly. The question, therefore, naturally arises, why is it that so many cases later develop malocclusion? It is now recognized as an established fact that many cases of malocclusion, a large number of which result in impaired dentofacial development, are caused directly through habits.

HABITS.

Habits of diet may be considered amongst the most important factors in the prevention of malocclusion and in assisting the normal growth of the jaws. For example, lack of vigorous mastication results in insufficient exercise to the masticatory muscles to stimulate the proper development of the jaw bones. It follows, then, that the daily food supply should provide an amount of coarse, fibrous food suited to the age of the child and that the child should be trained from infancy in habits of thorough mastication. If these desirable masticatory habits are formed during the early growing years, the forces thus repeatedly exerted upon the mandible and maxillae will result in the required normal growth, provided no other undesirable factors intervene.

In childhood, probably the most common habit affecting jaw development is mouth-breathing. This may be due to the presence of adenoids, enlarged or diseased tonsils, or nasal obstruction. Consequently, it is of great importance that the general practitioner should be able to determine from the appearance of the lips whether or not the patient is a

* A clinic presented at the Academy of Dentistry, Toronto, February 18th, 1925.

mouth-breather or has a tendency to unconsciously allow the lips to remain apart. Simple methods of diagnosing this condition are:—1. If there is a puckering or strain of the muscles over the symphysis when the lips are closed, the operator can be reasonably sure that they are not habitually closed together when relaxed. 2. By observing the relative habitual position of the lips of the patient when relaxed. 3. By the operator momentarily separating the lips with the fingers and then allowing them to assume a position of rest.

The first essential in methods of treatment necessitates the removal of the cause of the mouth-breathing. If there seems a possibility of its being due to nasal or pharyngeal stenosis, the patient should be referred to a Rhinologist. For, if the possible cause of malocclusion is uncorrected, there is little chance of the successful preventive orthodontic treatment of the case. Following the removal of the cause, patients should be taught to become constant, normal breathers by repeatedly reminding them to keep the lips closed during the daytime and by having them wear at night, if necessary, plasters of Surgeons' Silk Isinglass. These may be prepared by cutting the material into strips about one-quarter of an inch wide and two and one-half inches long. To apply, moisten two of these and place crosswise over the lips after they have been closed. (Plasters will thus be placed in the form of a letter X.) In the morning, soak the plaster with warm water and it will peel off readily. This treatment should be accompanied by instruction in exercises to promote development of the lip muscles, particularly the Orbicularis Oris. (Ref. International Journal of Orthodontia, Oral Surgery and Radiography, February, 1924, also previous papers on "Muscle Training" by Dr. Alfred P. Rogers.)

The preventive practitioner is also alert in observing the presence of other detrimental habits which must be corrected early, so that their effect upon the teeth is not cumulative. Of these, continued thumb sucking produces narrowing of the dental arches and prominence of the upper anterior teeth, persistent resting of the chin upon one hand causes a shift of the mandible, or resting the chin upon both hands results in a "close bite" or retroversion of the mandible; whilst to the biting of lips, nails or cheeks, may also be ascribed various forms of malocclusion. Further, such habits as sleeping in unnatural positions (for example, with the head upon the arm, or chin resting upon the hand), the frequent use of the pacifier and tongue sucking manifest their ill effect each in a specific manner toward malocclusion, and the practitioner must advise to suit the necessity of the case.

ENLARGED TONSILS.

By careful observation of the throats of his patients, the general practitioner may become quite proficient in detecting conditions such as

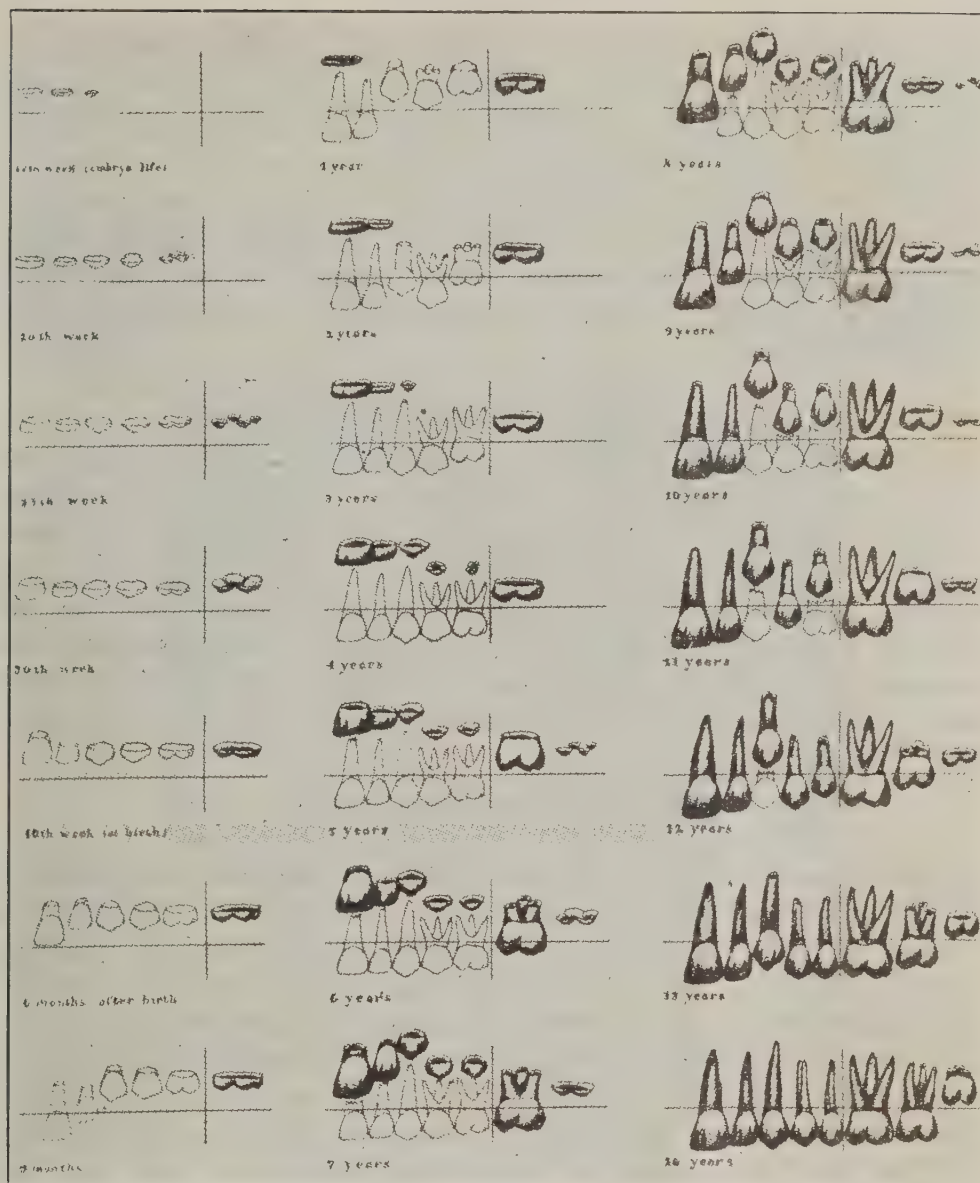
enlarged tonsils. Abnormal tonsils may produce protrusion of the mandible through the influence of a large tongue, which usually accompanies this condition. Many cases of this type of malocclusion (Class III. Angle) may be prevented by the early removal of the tonsils. Only recently, a mother upon consulting her dentist regarding the prominence of the lower jaw of her four-year-old daughter, was advised to wait until all the permanent teeth had erupted, when the condition would naturally be righted. As a result, instead of a short period of corrective work now, the child may later require prolonged orthodontic treatment.

PREMATURE LOSS AND PROLONGED RETENTION OF DECIDUOUS TEETH.

The retention of every deciduous tooth until just prior to the time of eruption of its permanent successor is another preventive of malocclusion. For, when a deciduous tooth is lost prematurely without maintaining the space it occupied, the remaining teeth shift so that the permanent successor may be crowded either buccally or lingually. When the premature extraction of a deciduous molar is necessary, the space should be maintained by inserting a little splint made by placing a band on the tooth mesial and distal to the space, and joining the two bands by a piece of heavy wire. A drifting forward of the first permanent molars may also be caused by such a neglect of the deciduous teeth that the mesio-distal diameter is lessened as a result of caries. Hence all cavities in deciduous molars and cuspids should be filled with metallic restorations and the original mesio-distal width of the tooth re-established.

The accompanying chart* shows the average age of commencement of calcification, eruptions and loss of the deciduous teeth and the average age of the eruption of their permanent successors.

On the other hand, prolonged retention of a deciduous tooth may also prove a factor in producing malocclusion. Radiograms should be taken before the removal of such a tooth, to make sure that the permanent successor is present. When the permanent tooth is then shown to be developing, its deciduous predecessor should be removed if retained beyond its normal time. If the absence of a permanent tooth is revealed the deciduous tooth may be allowed to remain, and will, in some cases, render service for a few years. It is to-day considered better practice, however, to remove the deciduous tooth, then move the teeth posterior to the space forward, thus avoiding the necessity of artificial replacement later on in life. For example, in cases where the first permanent molar is lost as a result of pathology and the third molar is impacted, the second molar may be moved into the space normally occupied by the first molar, thus relieving the impaction and allowing the



* Chart prepared by W. J. Brady, D.D.S., Kansas City, Mo.

third molar to erupt into the position of the second. This readjustment should be attempted only by a specialist or general practitioner who has fitted himself by careful observation and study of the subject of orthodontia.

OVERBITE.

Again, a deciduous tooth may also be removed provided there is evidence of a permanent successor in a case where the deciduous tooth has become ankylosed to the bone. It is thus prevented in erupting to the line of occlusion, and contributes to a condition of arrested

vertical development in the premolar and molar region. Hence arises the likelihood of an overbite. Hindrance to the complete eruption of the posterior teeth may also be provided by habits previously mentioned, namely, the resting of the chin upon one or both hands. Here, again, lack of thorough mastication plays an important part, as it may prove a causative factor in "close bite" by insufficient vertical development of the bone. Parents and patients should be informed by the dentist of the possible effect of continuing such habits and instructed in overcoming them.

NORMAL RESTORATIONS.

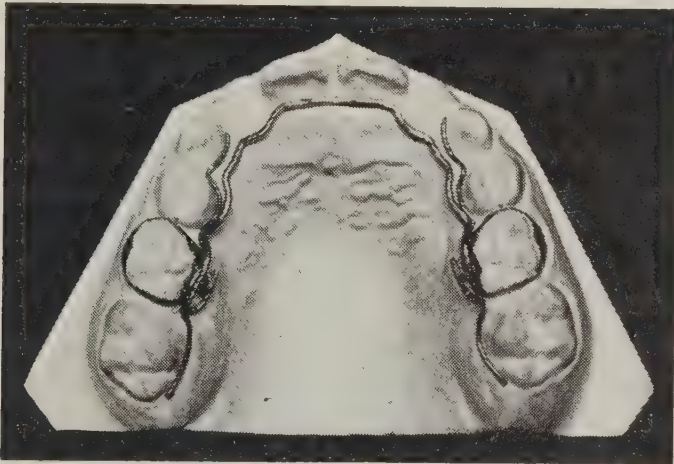
The importance of restoring normal size and form to lost tooth tissue should be emphasized in relation to the prevention of malocclusion. If an inlay or filling is too wide or too narrow mesio-distally, disturbance of the alignment of the teeth results, and normal occlusion is affected. If the fillings are over-full and are thus subjected to increased strain, the teeth bearing these fillings and their opponents are liable to be depressed in their sockets, or to otherwise change their position by "traumatic torque," with probable periodontal involvement.

PREVENTIVE MEASURES.

It should, therefore, be the endeavor of every dentist conducting a family practice to interview the children of three years and over and to make careful examination and records. From these he can base his recommendations and advise regarding habit formations and preventive measures to be followed. It should be his duty to see that all carious teeth are filled, and, if the cusps of the opposing teeth are not in correct relation, they should be made so either by himself or someone competent to render such treatment. A valuable record of every case may be obtained by taking impressions each year, and from these making casts so that the progress of development may be studied from the lingual as well as the buccal aspect. From such a collection indisputable facts may be gathered. Even in those cases where the deciduous teeth seem quite regular in their alignment, if spacing sufficient to accommodate the permanent successors does not naturally develop between the six anterior teeth from the ages of three and one-half to five and one-half years, special orthodontic treatment should be rendered as a prevention to irregular eruption of the permanent teeth. The late Dr. E. A. Bogue suggested a relationship between the mesio-distal diameters of the crowns of the deciduous and permanent teeth. By measuring the six anterior deciduous teeth and adding one-fifth of the measurement of the combined widths an esti-

mation of the approximate mesio-distal widths of the permanent successors may be made. In this way the size of the permanent denture can be pre-determined by using the Bonwill system described in Dr. Pullen's chapter on Orthodontia, published in Johnson's text-book of Operative Dentistry.

The lingual arch of .036" arch wire with auxiliary springs of .020" S.S.W. cold-drawn wire soldered to it well back toward the second deciduous molar anchorage is the ideal appliance for stimulating the development of the desiduous denture. The arch is attached



Illustrates a cast of the upper teeth of a little girl seven and one-half years of age. The lingual arch conformed to the surfaces of the teeth in their original positions. The expansion gained by the auxiliary springs of .020 wire in the deciduous cuspid and first molar region is shown by the amount of space between the springs and the arch. Extensions of .022 wire for expanding the first permanent molars are also shown.

to the molar bands by means of half-round vertical tubes (D.L. 8, made by the J. M. Ney Co.), which may be obtained from the Dental Supply Depot. These are placed upon the lingual surface of the molar bands, and an accurate fitting piece of half-round posting soldered to the arch wire, to engage the tubes on the bands. Locks are soldered gingivally at right angles to the arch wire, either at the mesial or distal, and bent so as to pass horizontally along the gingival of the tube when the arch is placed in position. This assures the appliance remaining in position. The light springs are adjusted to carry the molars and canines buccally. In addition, it is usually necessary to expand the anchor teeth as well, care being taken to avoid rotating these teeth. When the first permanent molars erupt too far lingually, light springs may be soldered to the main arch extending distally and adjusted to carry the erupting first molars buccally. The construction of the appliance is covered in a paper by Dr. John V. Meshon, entitled "The Removable Lingual Arch and Its Relation to the Orthodontic Problem," and published in the *Dental Cosmos*, 1920, pages 693-704.

Upon every side one hears the present heralded as the era of prevention. This is not limited to the province of dentistry alone, but applies to all branches of medicine as well. It is during childhood that the greatest opportunities for prevention are presented. Nowhere is this truth more applicable than to the field of Preventive Orthodontia. It is, therefore, our obligation to place before the parents of growing children such knowledge as we may possess, in order that the "ounce of prevention" may be applied during the formative period, when many life habits are established.

Tobacco Versus Hot Air



THE result of a series of tests to determine the influence of tobacco-smoking on mental and motor efficiency, which were carried out by Professor Hull of the Psychology Department of the University of Wisconsin, has just been published in the Press Bulletin:

Nineteen young men were used, of whom nine were smokers and the rest non-smokers. All but two were pipe smokers. They were blindfolded and each of them smoked for a specific time each day for eighteen consecutive days in a small room. Half the time they were given pipes filled with tobacco, and the other half they smoked pure hot air created by an electric wire in the bowl.

Only one of the nineteen subjects detected the difference between the hot-air pipe and the tobacco.

"One youth was always sure that he was smoking from the combination of a sharp stinging sensation and a ticklish sensation. He could always feel the smoke in his mouth. There was never any time, even for a single puff, when he doubted that he was smoking. It would not be possible for anyone to persuade him that he was not smoking any of the time."

The subjects were tested for pulse, adding, memory span, steadiness, reading reaction time, memorizing, and tapping. The heart action increased, and much of the increase was still present an hour and forty minutes after smoking. Along with this came a trembling of the hand.

The two most significant tests, from an intellectual standpoint, were complex mental addition and rote learning. The evidence of the effects of smoking on ordinary routine thinking is favorable to tobacco. Results in the case of rote learning are unfavorable to tobacco.

The real secret of popularity is to make every man feel that he is of importance.

A Personal Tribute to the Late Linford Smith

BY WILLIAM E. COMFORT, *Montreal.*



ON Sunday night, April 26th, 1925, at his home in Pittsburgh, the death occurred of Mr. W. Linford Smith, in the fifty-sixth year of his age.

W. Linford Smith was vice-president of the Lee S. Smith & Son Co., and of Lee S. Smith & Son Manufacturing Co., and of



THE LATE LINFORD SMITH.

1869

1925

Oral Hygiene, Inc., all of Pittsburgh. Since young manhood he had been active in the affairs of these well-known companies, and in the world of dental trade service, and in later years especially in dental health education.

It is doubtful if any dental tradesman in North America was better known and loved among dentists than Linford Smith. He was a conspicuous figure at the great national and international conventions,

where his berserker frame, commanding stature, and polished manners, created a vivid impression that was heightened in personal contact by his unusual mental endowments and gifts of speech. But countless dentists who never met him knew him intimately by his famous signature, "W.L.S.," and by his revealing personal letters, the expression of a master mind in English correspondence. He had broad humor, ready sympathy for an interlocutor's point of view, eagerness and surplus vitality, and great organizing ability. The sense of personal loss in his untimely death extends far beyond the circle of his family and his loyal business associates. For something over a year, ill-health had come upon him; he had made a good fight for recovery, but, quietly, in the night-time, his great heart stopped beating.

Linford Smith's early educational advantages were of an exceptional order, more especially in English literature and the arts. He had, in fact, travelled hopefully the paths that make a graphic artist; but the growing importance of dental supply commerce, in which his father was engaged, led him finally into those fields where he was so famous and successful. He had great catholicity of taste, and he was at home in all modern life and industry. He had intense manliness; he was a robust out-of-doors man and a "clubbable man" as well, with the gift of relaxation when work was done with. Mr. Smith was an enthusiastic golfer, as many dentists know; he so respected golf that his attitude towards his own game was consistently ribald.

What probably endeared Mr. Smith most to dentists was his prophetic vision of the aims, the needs, and the future of dentistry as a fundamental power for good in relation to the health of mankind. This faculty in him was nothing short of inspirational; it gave him tremendous force, as an original thinker and worker, and as a co-ordinator of other leading men's work in the oral health movement on this continent. Many years ago, in connection with an article of momentary importance, he used the slogan, "Saving the Teeth of the Nation." The device itself was negligible, but the phrase was characteristic of the man's habit of thought, ever turned towards dentistry as a means of public health.

Linford Smith was led, therefore, more than a decade ago, to found and continuously publish ever since, the magazine, *Oral Hygiene*, that extraordinary clearing-house of dental health information and propaganda, with its enormous and unique circulation among dentists. He took active part and leadership in many other organized efforts for dental welfare work, through the press, the mails, and the cinema. His counsel and co-operation were ever at the service of the forward-looking professional men in kindred activities.

Mr. Linford Smith and his father introduced the use of the carborundum crystals in dentistry, and they manufactured or distributed nu-

merous other technical improvements. Mr. Linford himself was among the first to enlist in dental material research, through a fellowship in the Mellon Institute at Pittsburgh, the new power of creative chemistry, now so greatly exercised in the industrial world. During the past year Canadian dentists in large numbers have renewed acquaintance with him, in correspondence about the Pasteur Institute's endocorps vaccin, for which Mr. Smith was North American agent.

Mr. W. Linford Smith is survived by his widow, a daughter and grandchild, by his son and namesake who joined the Smith companies last year, and by his father, Mr. Lee S. Smith, the distinguished founder of the businesses bearing his name, who, at eighty-one years of age, is still their active head.

Why Food Should Be Thoroughly Chewed

OU sometimes hear a man say, "Yes, I know I eat quickly, but I do everything quickly, so I guess my stomach and other organs do their work quickly also. I can't see just why I don't feel well."

When you suggest to a fast eater that he should chew his food slowly, he gets it into his head that you want him to give each bite a definite number of chews, to count them, in fact. He reasons that he'd just as soon have some pain occasionally as to sit and chew his food like a cow, carefully counting the number of chews.

If this were the purpose of slow eating, one could hardly blame him; but that isn't really the method that is suggested by food experts. The mental depression that would come over you as you sat there counting would do you more harm than fast eating.

However, fast eating is wrong, for a number of reasons. For instance, the digestion of the starches, and they make up the largest part of your food, should get a real start in the mouth as these starches mix with the saliva. If they reach the stomach before digestion has begun they have to wait until they get past the stomach into the small intestine before any further digestion takes place in them. This means too much unprepared starchy food to be handled there. Then, if you eat rapidly, the food is, of course, not broken up, but reaches the stomach in large pieces, instead of being finely divided. The teeth were meant to do this. That is why they are located right at the entrance.

This unchewed food reaches the stomach, and, as the stomach hasn't any teeth, there is bound to be trouble, some delay in handling the mass. It is surprising what the stomach can do sometimes in such cases, but at times the effort fails.

This subdividing of the food is not the only cause of trouble. The

teeth and gums do not get the work or exercise that they require. Poor teeth and soft gums are due to this lack of use.

The hurried eating of concentrated foods, like eggs and meat, is a serious mistake. They need to be divided into small particles, just in the same way as other foods. So don't hurry in your eating. It is unwise and harmful.—*Canadian Red Cross.*

Fee Splitting

“OW here's an experience I had only a short time ago,” related Dr. Armstrong in *Doctor and Patience*. “It just goes to show how far some men will go for a dollar. I operated upon the wife of the brother of a doctor. She took an expensive private room in the hospital and seemed to have plenty of ready money. Of course, I had no intention of sending a bill, because it was a doctor's relative.

“A few weeks after the patient went home, the telephone rang one morning. The doctor was on the other end.

“‘My brother has not received a bill from you, Dr. Armstrong,’ he said.

“‘Don't intend to send one,’ I answered. ‘I'm glad to do anything I can for your family, at any time, without question of remuneration.’

“The doctor seemed to hesitate for a moment, then:

“‘Do me a favor, Doctor, and send them a bill for two hundred dollars,’ he whined.

“‘I don't want it,’ I replied.

“‘But, Doctor, I've spent a lot of time on the case,’ he came back at me.

“I began to smell a nigger in the wood-pile.

“‘You see, Doctor, if you don't send a bill, I don't get anything,’ he went on. ‘Now you send them a bill for two hundred dollars and then you give me half.’

“I was so blazing mad I would have smashed him if he had been in my office. I thought for a moment before I answered.

“‘Yes, I'll send your brother a bill,’ I said sternly. ‘I'll send him a bill for two hundred dollars as you suggest. I'll itemize the bill and put down one hundred dollars for your services and one hundred dollars to be sent to the general fund of the hospital.’

“It is needless to say that I never got the money—and I've never seen the doctor since.

“Now there's the crux of the whole matter. There's nothing wrong with dividing fees, as long as the patient knows about it.”



PUBLIC HEALTH SERVICE

FOR THE PEOPLE ~ BY THE STATE

This Department is Edited by
FRED. J. CONBOY, D.D.S.

Director of Dental Services, Province of Ontario



HE recent convention of the Health Officers of Ontario was a great success. About three hundred physicians from various parts of the Province were in attendance and listened with great interest to the addresses and discussions. The Director of Dental Services gave a paper upon the subject, "Dentistry as a Public Health Activity," which outlined the activities of the Dental Department and showed how they worked into the Public Health Programme. The Health Officers were impressed with the possibilities of the new work and promised to take advantage of the services offered.



Dr. W. J. Bell, the new Deputy Minister of Health, is an enthusiastic supporter of the Dental Department. In an address delivered before the Hamilton Academy of Dentistry, he pointed out that this Department was one of the major activities in connection with the Health Programme and every effort would be made to make the advantages and benefits of dentistry available to the people.



The Hospital Dental Department in connection with the Western Hospital is running very smoothly, and the present activities indicate that the clinic will be a decided success. An effort is being made to get additional financial assistance so that every worthy person who presents may be given the dental treatment they so urgently need. A similar service is being organized at the General Hospital, Kingston, and we hope to have a complete report for the next issue.

Several large companies are considering the advisability of organizing industrial clinics.



Motion pictures and lantern slides can be secured by writing to The Director of Dental Services, Spadina House, Toronto. Newspaper articles are also available.



A number of dentists are writing to the Department to ascertain the cause of the delay in starting the Province-wide dental survey. It is

not the intention of the Oral Hygiene Committee or the Dental Department to attempt to make an inspection of the whole Province at one time, such an immense undertaking would be impossible with the organization at our disposal, but we are endeavoring to cover certain districts and to take these in the order of their urgency. Some dentists have made their own arrangements with the School Trustees or Boards of Health, and we have been pleased to send the necessary supplies to these men. In other cases the nurses have completed the arrangements with the Boards and secured the co-operation of the dentists. This Department has also initiated a survey in some districts. In all about ten thousand children have been examined, and the results are being tabulated. It will be some time yet before the work can be undertaken on an extensive scale, but in every case where a dentist has himself arranged to make a survey, the necessary supplies will be sent. The application for notification cards and tongue blades should indicate the number of children to be examined and the exact address.

* * *

Every dentist should make it a point to see the Oral Hygiene Exhibit at the Convention.

* * *

A number of the Government hospitals and institutions are now being visited in order that we may find out what dental treatment is being given to the patient. As soon as the inspection is completed it is hoped that a dental service will be established that will adequately meet the needs of these institutions. Case histories which have been collected, conclusively prove that the removal of dental infection and impacted teeth will improve the mental condition of many patients, but we would like to secure more evidence. We would, therefore, be very grateful if any dentist who knows of a case where dental treatment has brought about a cure for such patients, would report it to the Department.

Keeping the Mouth Clean



PATIENTS constantly enquire of dentists regarding the respective value of several dentifrices. The dentist's answer should be based upon a consideration of the *cleansing* properties of the dentifrice rather than upon its *antiseptic* properties.

A medicated dentifrice may be used to advantage in the treatment of certain diseased oral conditions and be entirely contra-indicated in the absence of these diseased conditions.

The ordinary mouth needs *cleansing* not *drugging* and patients should be directed to a simple cleansing dentifrice and be taught to rely upon their own effort rather than upon the "germicidal" properties of the dentifrice.



This Department is Edited by
THOMAS COWLING, B.A., D.D.S., TORONTO



PROFESSIONAL ETIQUETTE.

DENTISTRY, we find, is much the same as other professions, at least as regards the proneness of (some of) its members to breaches of good faith in matters ethical and otherwise. It is also very evident that no portion of the profession is entirely free from this weakness. The universality of unethical practitioners is an age-old truth. So it is with little surprise that we read an article dealing with this subject in the February issue of *The British Journal of Dental Science*. It is written by F. W. E. Wagner, M.A., T.C.D.

Mr. Wagner finds that all professional etiquette is nothing more nor less than the exercise of gentlemanly courtesy, allied with a spirit of loyalty to the particular profession concerned. It is the desire to see the profession standing high in public esteem, to enhance the dignity of the profession in every possible way, and to be just as jealous for the reputation of every individual member of the profession as for one's own. This, certainly, is a broad and comprehensive definition, yet it cannot be said to include too much. The trouble has been that the popular conception of ethics in dentistry includes too little; so our profession has become cheapened to some extent.

Take the question of advertising: this is an offence against the profession. There are, points out Mr. Wagner, various kinds of advertising, some blatant, others covert. Both are equally distasteful. Advertising of the blatant type, such as newspaper announcements of reduced prices, etc., has long been considered unethical and unworthy of our profession. But there is also a certain amount of covert advertising that is even more vicious in character, because it is difficult to uproot.

This form of concealed advertising may be carried on under various disguises, one of which is described by Mr. Wagner in his published

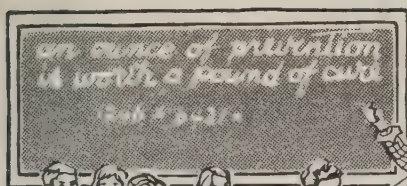
paper. He says that certain dentists get together and advance the proposition that the members of the dental profession be entered in two separate lists in the telephone and other directories. It is tantamount to saying to the public, "Come to us. We are the real top-notchers—the pick of the basket."

Another weakness in professional etiquette is for one member of the dental profession to criticize or disparage another in the hearing of the laity. Of this Mr. Wagner says: "I do not think that any man who really has at heart the dignity and honor of his profession would condescend to this sort of thing. Apart from the question of loyalty, it is also a subtle form of self-advertisement." It should become a rule with a dentist also to discourage disparaging remarks by patients about other dentists with whom they have had professional relationship. Dentists should courteously, yet firmly, refuse to listen to criticism of their fellow practitioners. This requires courage, it is true, because such an attitude most probably will mean that the patient will go elsewhere for treatment, but the dignity of the profession will not have suffered. There is some consolation in this fact.

With regard to patients who have had work started by one dentist and then gone to another for the completion of the treatments, Mr. Wagner holds this viewpoint: "It is unfair to the man who began the treatment. At the moment the patient may be dissatisfied, but for all that the original operator might bring the case to a perfectly satisfactory conclusion." When a patient comes to us and asks us to complete some unfinished treatment, there can be no question about it, the patient should be referred to the original operator, provided, of course, that he is accessible. If he is not, and the matter is urgent, I would consider it justifiable to do what was absolutely necessary, but nothing more. In such a case the second dentist should take no fee, but should explain that he is merely acting on behalf of the original operator, with whom he should immediately communicate, informing him of the circumstances.

The question of "split-fees"—an arrangement between dentist and specialist—still holds interest for all practitioners, because we know that it still exists. No defence of any such arrangement can be made on any basis whatever; it is just as pernicious as the most blatant bill-board or hurdy-gurdy advertisement. It should be vigorously attacked at its very roots, otherwise our entire profession will become contaminated by the poisonous virus.

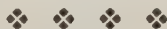
INLAYS.—When fitting large inlays into sensitive teeth, much pain can be avoided by holding the inlay for a moment under the hot-water tap before trying it in the cavity.—*Australian Journal of Dentistry.*



School Dentistry

This Department is Edited by
EDMUND A. GRANT, D.D.S.

Director of Dental Services—Department of
Public Health, City Hall, Toronto



We are anxious to receive for publication in this Department reports of work carried on in School Dental Centres anywhere in Canada. Papers on any phase of Pedodontia would also be welcome.—E.A.G.



REGINA SCHOOL CLINIC.



REGINA, Saskatchewan, was one of the first cities in Canada to establish a free dental Clinic, and has been doing excellent work in the schools in this city for about twelve years.

The local Dental Society first took the matter up with the Public School Board in 1912, and the suggestion was made that at first local practitioners would give one half day per week to this work and see the clinic established on solid ground.

This suggestion was acted upon by the School Board and the Clinic was opened. The work had the hearty co-operation of W. A. Thompson, M.D.C.M., who at that time was chairman of the Board.

When once it was seen of what great service this clinic was capable in handling needy cases amongst the school population, the Board in a very short time felt fully warranted in placing a full time dentist in charge, and Dr. W. H. Harvey was given the appointment of School Dentist in charge of the clinic.

In 1917 Dr. Harvey received a similar appointment at Calgary, and Dr. Grace Armstrong, a practitioner of Regina for some years, took over the Regina Clinic.

Dr. Armstrong from the very first has been very enthusiastic over her work and is doing invaluable work from the health point of view amongst both the children and parents.

At the present time there are some 6,000 cards on file at the surgery, and this does not include those who have left school.

The school nurses, of whom there are three on the staff at the present time, make all first examinations and appointments. They decide when

a child is a clinic case, and collect information as to whether the child's parents are able to attend financially to the case.

The parents are advised that the child is in need of dental treatment and may be treated free at the school clinic if it is so desired.

Once a child comes to the clinic for his first appointment he is then entered on the list of patients and given further appointments through his teacher.

The following is a brief summary of work done at the clinic last year:

Number of appointments made by nurses	1952
“ “ kept at clinic	1551
“ “ fillings in permanent teeth	923
“ “ extractions	868
“ “ prophylactic treatments	333
“ “ fillings in temporary teeth	530
“ “ root fillings and treatments	141
“ “ orthodontia cases	6

* * *

HE meeting of the School Health and Physical Education section, held during Easter week as part of the Ontario Educational Association Convention, was very successful and interesting from a dental standpoint. To those who are not familiar with Public Health Service, it might be explained that it is the yearly occasion for School Medical and Dental Officers, School Nurses and Physical Training Instructors, to meet in conference and discuss their various problems; so that their efforts towards improving the health of the school child may all be co-ordinated. Joint meetings were also held with the Home and School organizations, thus establishing a close connection with this valuable aid to any School Health programme. The principal speaker of the meeting was Professor C. E. Turner of the Massachusetts Institute of Technology, who advocated the teaching of Health Education and training of the child in the formation of proper health habits. He made a strong plea for the spreading of all the acquired scientific knowledge on Health, and putting it to a practical everyday use in our daily lives, instead of hoarding it up in text books, and showed how this could be worked out in a School Health programme. Two papers by Dr. D. E. Wishart, Toronto, on the "Diagnosis of Diseased Tonsils, and After Results of Tonsillectomy in Children," and Dr. E. A. Morgan, Toronto, on "The Role of the Tonsil in the Production of Disease in Children," were of great interest to the dentists in attendance. A series of slides showed very clearly some of the bad effects following unskilful operations. The dental subject chosen for presentation to the general session was "Some Results of the Abnormal Loss of the Deciduous Teeth," and the dental section have every reason to feel proud of the splendid way this was presented

by Dr. S. A. Moore, of London. This paper is printed in this issue of the Journal, but it is regretted that it is impossible to reproduce the splendid series of about 70 slides, with which Dr. Moore illustrated his paper. These were all prepared by Dr. Moore from actual cases in his own practice, each one clearly indicating the effects produced from the abnormal loss of various teeth. The series of diagrammatic slides, showing various stages in eruption of the teeth, were most instructive.

The meeting of the Dental Section was held at the Royal College of Dental Surgeons. After Dr. Conboy, Director of Dental Services for the Province of Ontario, had outlined his plans for his new department, Dr. Harold Box spoke on "Some Premonitory Indications of Periclasia to be Found in the Mouths of Children," and Dr. R. M. Box on "A Standardized Method of Brushing the Teeth." These talks were intensely interesting, and those present felt that the time spent was more than worth while.

Much of the credit for the success of the meeting was due to the hard work of the President, Dr. J. E. Davey, of Hamilton, and the Chairman of the Dental Section, Dr. E. W. Fuller, Chief School Dental Officer, London. They set a standard in programme that will be hard to equal next year. The officers for next year are: *Hon. President*, Dr. J. E. Davey, School Medical Officer, Hamilton; *President*, Dr. E. A. Grant, Director of Dental Services, Toronto; *Vice-President*, Dr. Eric K. Clarke, M.B., Toronto; *Sec.-Treas.*, Dr. J. T. Phair, Chief Child Welfare Division, Ontario Department of Public Health; *Chairman (Medical Section)*, Dr. H. C. Cruikshank, Deputy Medical Officer of Health, Toronto; *Chairman (Dental Section)*, Dr. Walter Manning, Hamilton; *Chairman (Nursing Section)*, Miss Barbara A. Ross, Reg. N., Department of Health, Toronto.

* * *

TOMMY TUCKER'S TOOTH.

 HE Oral Hygiene Committee, of the Ontario Dental Association, have lately secured a motion picture film, entitled, "Tommy Tucker's Tooth," which is available for use anywhere in the province by communicating with their secretary, Dr. J. C. Livett, 240 College Street.

This film has been shown in a great many of the Toronto schools, and has aroused a great deal of interest. Dr. J. G. Pilkey was showing it lately to a foreign class in one of the schools, and afterwards the teacher had the children write compositions describing what they had seen. They were, on the whole, very good, but two were thought specially worthy of reproduction.

THE CARE OF THE TEETH.

(Written by a Russian girl only three months in Canada.)

I AM going to tell a real story about two boys. Jimmy Jones and Tommy Tucker. The first boy was careless for his teeth and therefore his health was weaker than the other boy Tommy, who was very careful for his health. They both were going to the same school and were friends. When they had finished the school they were going to get a job. Tommy got his job at once. He was good looking and the business-man pleased him very much. But Jimmy was refused for looking very bad. His teeth were spoiled, his suit, face and hands were dirty. Before he went out the man gave him an advice, to go to the dentist and to take care of his health. One day Jimmy on his way to the dentist, met his friends playing on the street. They asked him to play with them, but Jimmy answered, "I am very busy, I am going to my dentist." When he got ready with his teeth, he had not the tooth-ache any more and his health grew up. Jimmy kept his clothes very clean. He did not forget the man's advice. After few weeks he came to the business-man's office to thank for his advice, which made him very healthy and very good looking. In the meantime he asked for a job. The business-man could hardly believe that it is the same boy Jimmy, whom he had seen a short time ago. The man was very glad with Jimmy, and took him to his office. Teeth have a great deal to say about our health. We must take care for our teeth and wash them after meals, in the morning before breakfast, and before going to bed.

* * *

THE CARE OF THE TEETH.

(Written by a Polish boy of fifteen years—foreign class, Toronto school—five months in Canada. Could not speak English.)

I T was two friends named Jimmy Jones and Tommy Tocker. One day Jimmy Jones was cleaning the teeths in the morning. He throw away his tooth brusch and he said "That cleaning the teeths are just for girls not for boys," and Tommy Tocker was cleaning every day his teeth. When they grow up they went for a job, when they came in the men said "I give just a jub Tommy Tocker, and you may go to a dentist to cleaning your teeth." He want to the doctor as qwick as he could. When he came the dentist, the dentist said "You must clean your teeth three times or more every day." Then want home, he couldn't sleep at night, because he get nerves. Tomorrow morning he was cleaning the teeth. And he came to the man for a jub. When the man saw him he said a new boy is here and he was strong, and he get a jub!

Last month we published a report of the dental service in Hamilton. The following item from the daily press shows they are further extending their work:

Hamilton, Ont., April 17.—Dr. M. J. Moore and Dr. L. A. Kilburn were appointed to take charge of the new dental clinic, at an annual salary of \$1,200 each, at a meeting of the Board of Health this afternoon. The doctors appointed were recommended by Dr. W. G. Thompson, supervisor of the work. A vote of thanks was tendered Dr. Everett and Dr. Thompson, who agreed to take charge of the clinic until appointments were made.

The Morris L. Chaim Prize for Original Dental Research



THE First District Dental Society of the State of New York announces the establishment of an annual cash prize for original dental research. This prize is made possible by the generosity and public spirit of the late Morris L. Chaim, who bequeathed to the First District Dental Society the sum of \$5,000, the interest therefrom to be awarded annually as a prize for original research.

The conditions are as follows:

A thesis must be presented to the First District Dental Society, 250 West 57th Street, New York City, accompanied by a suitable description of experimental work and bibliography.

Material for the first award must be submitted not later than January 31, 1926. The award is not limited to members of the dental profession.

THE FIRST DISTRICT DENTAL SOCIETY PRIZE FOR ORIGINAL DENTAL RESEARCH.

In addition to the Morris L. Chaim Prize, the First District Dental Society will award annually a cash prize of \$250. This prize will be awarded to that contribution submitted for the Morris L. Chaim Prize which, in the judgment of the committee, shall have the most valuable immediate practical application to the practice of dentistry.

The names of the judges will be published at an early date.

LELAND BARRETT,

MILO HELLMAN,

ALFRED WALKER, *Chairman*,

100 West 59th St., New York City.



British Columbia—Ray H. Wilson, D.D.S.
736 Granville Street, Vancouver.

Alberta—JOHN W. CLAY, D.D.S.
914 Herald Bldg., Calgary.

Saskatchewan—C. W. PARKER, D.D.S.
Imperial Bank Bldg., Regina.

Maritime Provinces—J. STANLEY BAGNALL, D.D.S., 34 Larch St., Halifax, N.S.

Manitoba—W. W. WRIGHT, D.D.S.
767 Warsaw Ave., Winnipeg.

Ontario—LIEUT.-COL. W. G. THOMPSON,
28 King St. West, Hamilton.

Quebec—ARCHIE N. JENKS, D.D.S.
Medical Arts Bldg., Montreal, Que.

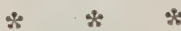


QUEBEC.

MONTREAL.

IN a lecture on the care of the teeth and mouth, which was broadcast by Dr. Walter Kennedy on Saturday evening from Station CKAC (La Presse), Dr. Kennedy emphasized the point that contagious diseases are most frequently communicated by sprays while speaking, sneezing or coughing. It had been shown, he said, that in an apartment where there was no appreciable current of air a person coughing or sneezing could distribute disease germs to a distance of more than 22 feet.

The germs were distributed by salivary droplets, microscopic bubbles, which would remain suspended in the air for some time. The more pathogenic microbes contained in the mouth the greater the danger of infection through coughing or sneezing. He advocated washing the mouth with antiseptic fluids as a means of preventing this dissemination of diphtheritic and similar diseases. Persons, when sneezing, should place a handkerchief over the mouth, not only as a matter of politeness, but to prevent dissemination of microbic diseases. He emphasized the necessity for proper care of the teeth, not only as a means of preserving individual health, but as a means of preventing the spread of contagious diseases.



ONTARIO.

DR. O'NEILL, who is chairman of the Educational Committee of the Windsor Kiwanis Club, brought home to the members in a striking way the ideals for which the organization stands, impressing on them the need for service in its broadest sense.

He declared that five spiritual forces make up the "deeper significance of service," referring to them as integrity, faith, friendship, duty and knowledge.

"Integrity is the great base upon which must rest all the other fundamentals that go to make up our interpretation of the deeper significance of service."

"Faith is no idle word to be used loosely," he said. "Next to integrity, there is no spiritual force so essential to the personal equipment of the modern business man as faith. Faith and vision, combined with integrity, break down the most insurmountable obstacles. When the time comes when men and women cease to dream new dreams, and lack faith in their mind creations, then progress has died, and the earth goes back to the primeval stage.

"By friendship we mean the greatest love, the greatest amount of usefulness and the most open communication, the severest truths, the noblest sufferings, the heartiest counsels and the greatest union of minds of which brave men are capable. As true friends, we should unbosom freely, assist readily, advise justly, boldly, take all patiently, defend courageously and continue a friend unchangeably.

KNOWLEDGE AND IGNORANCE.

"By knowledge, the wings of the intellect are spread; by ignorance they are closed and palsied, and the physical passions are allowed to gain the ascendant. Knowledge opens all the senses to the wonders of creation; ignorance seals them up and leaves the animal propensities unbalanced by reflection, enthusiasm and taste.

"Our hearts and minds will expand and grow under the benign influence of the forces of the spirit. Thus we shall be better men and better citizens."

W.G.T.

* * *

SASKATCHEWAN.

Dr. Dick Conrod, recent graduate of Toronto, died suddenly in his office at Edmonton, on March 1st. Dr. Conrod was formerly of Regina.

Dr. A. F. Dyer, for a number of years a practitioner of Regina, Sask., has bought the practice of Dr. T. W. Snipes, of Vancouver, and removed to that city.

Drs. J. L. MacDougall, V. Lane, C. C. Craigie, recent graduates of the Royal College of Dental Surgeons, have located in Regina, Sask.

Dr. B. I. Gitterman recently returned from New York with his bride.

Dr. Clarke Osborne has located in Avonlea, Sask.

Dr. A. Gregor Smith is spending the winter in Florida. While there he intends to write the State Board examinations.

Dr. J. C. Countryman has taken over the practice of Dr. Ferguson, of Saskatoon.

Drs. W. Ibberson and R. L. Toren have recently given lectures and clinics before the Saskatoon local society on "X-ray Diagnosis" and "Anatomical Articulation." Dr. Armitage also lectured before this society on "Oral Infection."

Dr. MacDonnell, recent graduate of R.C.D.S., has located in the McKay Block, Saskatoon.

Dr. Miller, formerly of Edmonton, whose articles on "Dentistry among the Eskimos" have been published in the *Dominion Dental Journal*, has joined partnership with Dr. Nagel, of Saskatoon.

Dr. D. V. MacRae, who suffered the loss of his entire equipment in the recent Drinkle Block fire, has located in the Canada Building, Saskatoon.

—C.W.P.

* * *

ALBERTA.



THE visit to Alberta of Dr. Harry Thompson, Field Secretary of the new Canadian Dental Hygiene Council, has been a great good to dentists with whom he came in contact. He was the guest of the Dental Societies at Edmonton, Calgary, Lethbridge, and Medicine Hat, as well as numerous lay organizations, and worked tirelessly in these cities preaching the gospel of better Dentistry, as embodied in the aims of the new society which he represents.

"Service Plus the Vision," the title of one of his addresses, gives the best conception of Dr. Thompson's mission, and portrays the thought in the minds of those responsible for the birth of this movement. Dr. Thompson's personality has sold a fine idea to the Dentists and the large number of laymen of the Province of Alberta with whom he came in contact.

More than that. This visit is at least an effort toward bridging the differences which distance and divergent interests tend to develop between the Dentists of Central and Western Canada.

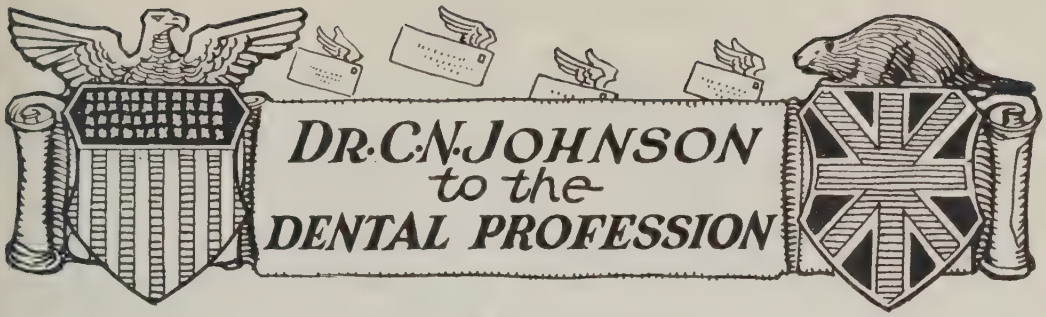
* * *

Officers elected in April, for one year, for the Calgary Dental Society: *President*, Dr. J. M. Dixon; *Vice-President*, Dr. Harold Macaulay; *Sec.-Treas.*, Dr. A. C. Steeves.

* * *

Dr. H. E. Bulyea, acting-Dean of the Dental Department of the University of Alberta, was one of the headliners at the recent meeting in Spokane of the Washington State Dental Association. Dr. Bulyea cliniced on "Special Gold Inlay Technic for Lower Incisors, and Casting Processes." His work and teaching ability were much appreciated, as evidenced by the large and attentive group usually to be found in attendance. Both he and Dr. McIntyre report a very fine time, and courteous hospitality.

J. W. C.



Dan Healey



EARS ago it so happened that I travelled frequently from Chicago to St. Paul and Minneapolis, and I invariably went on a certain train. This trip between Chicago and the "Twin Cities" is noted for having the best facilities for transportation of any similar trip in the world. There are so many different lines of railroad, all having superior equipment, that it is almost confusing to attempt to make a selection. But with me—as with many others—there was never any doubt about what train should be taken; I always went on the Pioneer Limited of the C.M. and St. Paul. Why? Not because this train was so superlatively better than all other trains, nor because I was particularly partial to the St. Paul lines. All lines were good, and the equipment was beyond criticism on all of them.

But there was one outstanding feature of the Pioneer which made it the most talked-of and most popular train on this route. To those unfamiliar with the situation, it will probably bring a smile when I mention the fact that this feature was merely the *dining car steward on this train*. Dan Healey made the Pioneer. Years ago after a trip I published the statement, "Dan Healey is the greatest dining car steward in the world—bar none," and this statement has never been successfully controverted.

Why did all of us like to ride on the Pioneer with Dan Healey? It was not because we were gluttons and thought only of our stomachs; it was not because the food was so very much better than that on other trains—the food was good on all these trains—and it was not because a meal on the Pioneer cost any less than elsewhere—it surely did not. Nor was it because Dan Healey was an intellectual giant or because he entertained us with stories. I can even imagine that Dan Healey was not an educated man so far as book learning was concerned—he never gave one the impression that he had read very much. And so there must have been some other medium by which Dan Healey won everybody and made them wish to ride with him on the Pioneer. The answer is simple, and altogether patent—it was through the medium of service.

The moment you stepped in that diner Dan made you feel as if you

were his especial guest. He was all the while circulating among the passengers to see if by some little extra attention he could contribute to their comfort and happiness. He studied the menu carefully, and was invariably in a position to suggest what would be found particularly palatable on that especial occasion, and his judgment was never amiss. I would always rather go into the diner and have Dan tell me what to eat than to attempt to make a selection myself. He seemed to divine what each one liked, and if he noticed that a passenger appeared to relish any particular viand he would quietly lean over the table and say: "That seems to be very good to-night—we will just have the boy bring you another helping." And no protest on your part could prevent it. He had all the waiters vieing with each other to see which could look after the passengers most assiduously, and there was an *esprit de corps* on that dining car that I never saw surpassed.

The only difficulty I had with Dan was that he invariably stuffed me to suffocation. I was led to eat more than ordinarily just because it seemed to give Dan so much pleasure to see me eat. When I was nearing the end of my roast chicken and feeling particularly at peace with the world Dan would beckon the waiter and say in the most matter-of-fact manner: "Bring the Doctor some more of that chicken—it's nice to-night." And away he would go to another table before I could enter a protest. Somehow over-eating never seemed to harm you when Dan was feeding you—he predigested every morsel of food with his solicitous attention. The only time I ever turned him down flat was over an extra piece of pie. One evening when I had eaten more than was good for me I heard him say to the waiter: "Bring the Doctor another piece of pie." "No, waiter," said I, "don't you do it—I simply can't eat any more." Do you think Dan was bluffed? Not for a moment. "Bring on the pie," he ordered the waiter. "The Doctor may *change his mind*."

Everybody predicted that Dan Healey would ruin the company with his liberality, but what he really did was to make the Pioneer Limited the most popular train running out of Chicago. The last time I rode with him I saw he was apparently failing in health. I was standing on the platform waiting for the train when he came along and said: "Are you going up with us to-night, Doctor?" I said I was. "Let the boy put your suit-case in the sleeper, and come with me." And he took me in the diner and seated me at a good table to avoid the rush. He never overlooked a courtesy. That night I did not enjoy my meal quite as much as usual, but I was careful not to let him know it. The evidence was so clear that he was rapidly failing that it was painful to his friends, but his spirit of kindly service never deserted him. As I left the diner his cheery "Come again, Doctor," rang out with the same old solicitous tone, but I went to my sleeper with a lump in my throat.

It chanced that I did not go on the Pioneer again till the other day, several years later, and when I entered the diner there was a strange steward—a very fine man, but—not Dan Healey. I made special note of the service to see how different it would be. The waiter showed more than the usual solicitude for the comfort of the passengers, and when he finally leaned over and said with a smile: "Wouldn't you like a little more of that chicken, sir?" I looked up at him and said: "You were on this diner when Dan Healey was living, weren't you?" And he straightened himself up a bit with an attitude of pride and self-respect, and said: "Yes, sir, I was." And I merely remarked: "You haven't forgotten him—or his methods." And the smile on that colored man's face was equal to a benediction. As I left the diner I could not help remarking to the new steward: "I miss Dan Healey," and he answered with a certain tinge of sadness: "We all miss him—I hope you will come again."

I stepped from the train at Milwaukee for a breath of fresh air while they were removing the dining-car, and, as it was uncoupled and swung off toward the siding, I saw written across the entire length of the car, "DAN HEALEY."

Dan Healey was only a dining-car steward, but by sheer force of so simple a thing as solicitous service he left his imprint on the personnel of that entire train. As we were pulling into St. Paul the next morning, five minutes early, the passengers were commenting on the excellent service on that train, and the porter, overhearing it, said: "Yes, we think this is a very fine train." I asked: "Do you know what makes this train so fine?" He looked at me enquiringly, and I said: "The thing that distinguishes this train from others is the spirit of Dan Healey." And the porter's face softened as he said: "Yes, sir—yes, sir, he was a very great man."

If the world would only accept the silent lesson taught by Dan Healey, we would come nearer to having a heaven on earth.

C. H. Johnson

The Eleventh Hour—But—Do It Now!

SEND in your registration for The Ontario Dental Convention at The University of Toronto Arts Building, May 26, 27, 28, 29, 1925. Hear I. F. Hellmuth, K.C., on "Advertising."
FRED. J. CONBOY.

Officers of Canadian Dental Organizations

Oral Health will be Pleased to Receive Additions or Corrections that Directory
of Names May be Kept as Accurate as Possible



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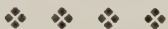
British Columbia

Dr. W. J. Lea, Registrar, College of Dental
Surgeons of B.C., Vancouver, B.C.



DIRECTORY of DENTAL MEETINGS & OFFICIAL ANNOUNCEMENTS

*Dental Associations are Invited to use this Department Freely for
Announcements of Meetings*



DENTAL CONVENTION AT WINNIPEG—12th to 15th May, 1925.

EASTERN ONTARIO DENTAL ASSOCIATION—1925 Meeting at Stanley Island
(Cornwall). Thursday and Friday, June 25th and 26th, 1925.

ONTARIO DENTAL ASSOCIATION—1925 Meeting at University of Toronto, 26th to 29th
May, 1925.

CANADIAN DENTAL ASSOCIATION—1926 Meeting at Halifax, N.S. Date to be set by
Executive.

NOVA SCOTIA DENTAL ASSOCIATION—At Digby, 16th, 17th, 18th July, 1925.

AMERICAN DENTAL ASSOCIATION—1925 Meeting at Louisville, Kentucky, 21st to 25th
September, 1925.

INTERNATIONAL DENTAL FEDERATION—1925 Meeting at Geneva, Switzerland, 2nd
to 6th August, 1925.

Oral Health

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Vol. 15

TORONTO, MAY, 1925

No. 5



EDITORIAL



Cordial Invitation Extended to Attend Ontario Dental Convention



ALL ethical members of the dental profession are cordially invited to attend the Ontario Dental Association Convention, to be held at the University of Toronto, May 26-29, 1925. Practitioners outside of the Province of Ontario will be registered as guests, without fee. This friendly and fraternal invitation from the Ontario Association will, it is hoped, be accepted by members of the profession from other provinces and the United States who can arrange to attend.

Owing to the close proximity of the provinces of Quebec and Ontario, the practitioners of the former province could be present at the convention without much loss of time to their practice, and if as many as possible will avail themselves of this invitation, we believe it would be helpful in bringing about better co-operation and furthering the interests of dental science and practice. The officers of the Ontario Dental Association extend a sincere welcome to all visiting dentists, and to none more than their confreres in the Province of Quebec.

“Chabudo”—Not Good Enough



R. JOHN E. THOMPSON, Dental Teacher and Missionary, home on furlough from China, in addressing a group of Dentists at the University of Toronto recently, made reference to the tendency of some students to consider a piece of technique work as being *Cha Puh To*, pronounced Chabudo, and meaning “almost right,” or, as they say in China, “differ not much.”

The Dental teachers at the West China Union University are constantly maintaining the ideal of *Ho Shih*, meaning good, or excellent. This quality of having things exactly right is one of the great foundation stones upon which success in dental practice is built.

The status of Dentistry among the scientific and learned professions depends, in the final analysis, upon the conduct, character and attainments of the average Dentist. How important, therefore, for all of us to realize that “Chabudo” will never do, but that we must have the exactness of scientific men in the rendering of Dental service.

This means study, observation and honest work. The upward climb is always a slow, steady grind, but, if undertaken in the spirit of service, will give great pleasure in the very effort made, no matter how arduous the task. One cannot overlook the experience of the great man Isaiah, who said: “For precept must be upon precept, precept upon precept, line upon line, line upon line, here a little, there a little.” What better motto than this could be adopted by the scientific man, the searcher after truth, who desires to progress and has it in his heart to render to humanity what service he can, as he passes along life’s journey?

Commercial Advertising by Dentists Pronounced as “Unprofessional” and “Unethical”



THE Royal College of Dental Surgeons of Ontario has undoubtedly won a most signal victory in the recent judgment handed down by the second Divisional Court of Ontario in dealing with the appeals of Dr. B. G. Davidson of Hamilton, and Dr. E. C. Boyle of Toronto.

The Board of Directors of the R.C.D.S., after proper and impartial investigation, found these two dentists guilty of “Improper conduct in a professional respect,” inasmuch as their methods of publicity in the daily press took on the form of commercial advertising.

Accordingly the Board took the only proper course open to it in dealing with such misdemeanors and suspended the license of each until such time as the Board shall receive satisfactory assurances that such improper conduct would not be repeated.

Against this decision an appeal was taken by the dentists in question to the Second Divisional Court in Ontario.

The case for the College was argued by Mr. I. H. Helmuth, K.C., and Chief Justice Latchford who wrote and delivered the appeal, said in part:—

"Advertisements of that character are regarded by the college as objectionable from an ethical and professional point of view. What is, or what is not ethical in my profession is not easy to define, and I am not aware that in this country any profession has formally stated any standard to which its members must conform. The reason is as obvious as that which has prevented our Courts from defining fraud. Yet we know that such standards exist as codes of moral conduct existed before and apart from the Decalogue.

"In the present case the question is not whether the conduct complained of was "infamous" or "disgraceful" and therefore involving moral delinquency, but merely whether it was "improper in a professional respect."

After dwelling upon the powers conferred upon the Board of Directors by the Dentistry Act, to pronounce upon the conduct of the members of the College, and to administer discipline necessary and proper according to their judgment, the Chief Justice goes on to say in conclusion:

"If it is shown that a member of the College in pursuit of his profession, has done something with respect to it, which would be reasonably regarded as improper by his professional brethren, in good repute and competency, then it is open to the Board of Directors of the College to decide that he has been guilty of "improper conduct in a professional respect."

This judgment, it would appear, has settled at least three important questions:—

- (1) That the Board of Directors of the College under the powers conferred upon it by the Dentistry Act is legally competent to discipline, when necessary, any member of the College, even to the extent of suspending or cancelling his license.
- (2) That such a governing body in any profession is the most competent body to pass judgment upon the conduct of its own members, and accordingly, where any reasonable judgment is imposed by this governing body, after a proper and impartial investigation, then the courts are not inclined to interfere.
- (3) That "Improper conduct in a professional respect" may be something quite different from the notion of such by the ordinary layman on the street.

It is also important to note that the judgment just handed down by Chief Justice Latchford is quite in accord with the judgment rendered in that now famous English case of *Allison v. the General Council of Medical Education*. Lord Esler, in delivering judgment in that case, said in part:

"The question is not merely whether what a medical man has done, would be an infamous thing for any one else to do, but whether it is infamous for a medical man to do. There may be some acts, which, although they would not be infamous in any other person, yet if they are done by a medical man in relation to his profession, that is with regard either to his patients or his professional brethren may be fairly considered "infamous conduct in a professional respect."

Altogether this judgment may be looked upon as having far reacting effects on the future standing of the dental profession in Canada.

Recently among a small minority of the profession there has been a deliberate attempt to degrade the profession of dentistry, to the level of a mere business concern, and the practitioner who could send out the most glaring and attractive advertisements, would stand to reap the greatest financial reward, irrespective of his professional ability.

For the sake of the dignity of our beloved profession, and in the best interest of the public's welfare, let us hope that such conditions are at an end, and that in the future the individual practitioner will succeed only according to his merits.

Dr. R. Gordon McLean, chairman, the members of the Discipline Committee and the Board of Directors are to be congratulated upon the very patient and judicial way in which they have proceeded in these matters.

R. G. McL.

Correspondence

Editor, ORAL HEALTH.

Sir:—

MY attention has been directed to an article that appeared in the January number of *Oral Health* headed "Press Report Regarding Copper Amalgam" reading as follows: "The University of Toronto and the Royal College of Dental Surgeons of Ontario wish to state that they disclaim any knowledge of or responsibility for the statements recently made in the public press regarding the merits of copper amalgam as a root canal filling, and direct attention to the regular dental professional channels for information.—Official statement."

In the article which appeared in the *Toronto Daily Star* of January 6th, 1925, no mention was made of the University of Toronto being connected with copper amalgam as a root canal filling. That was distinctly credited to the writer. The University was credited with showing definite germicidal qualities of copper amalgam of a permanent nature following the work done by Miss C. J. Fraser in the laboratories of the University,—these findings of Miss Fraser suggesting to the writer the use of that material for root canal filling.

The University, it would appear then, was not called on to repudiate something that did not appear in connection with it, viz., the use of copper amalgam for filling root canals of teeth.

The Royal College of Dental Surgeons, on the other hand, in "disclaiming any knowledge of these statements," seems to have overlooked the fact that the practice of filling root canals with copper amalgam has been taught to the students in the College for more than two years.

As a member of the Royal College of Dental Surgeons, I would ask you to be so good as to explain this contradiction appearing in your journal.

The article would seem to have been written without knowledge of the facts, and, bearing the names of the two distinguished educational bodies, has tended, unnecessarily and unwarrantedly, to discount a fundamental truth and the practice based thereon that may prove to be of real value both to the profession and the public.

One effect of this repudiation may be seen in the use made by one of our dental manufacturing firms of your article and a similar one signed "C. Jane Fraser" and "Harry S. Thomson."

Surely a graduate who would refer to the College of the R. C. D. S. as his Alma Mater should expect reasonable fairness and accuracy from his Alma Mater in matters where he is concerned.

Press publicity is and always has been distasteful to the writer and the article in question appeared without his consent.

In fairness to the Toronto press, however, it must be said that apart

from the excursions into monetary matters, etc., the facts as given in the article were stated accurately and conservatively.

That being the case there would seem to be scant reason for such bald courtesy being shown to an alumnus of the College in the disclaimer as published.

Should not the attitude of our College be to investigate and encourage whatever may seem to be of a progressive nature rather than to smother it, especially when one of their number is concerned?

Graduates are enjoined, as they go out to practice, to think and progress after they leave the College walls. Stress is being continually laid on the point that the College always stands to help and encourage the graduate. Practical demonstration must needs accompany these sentiments. Blind haste should give way to sane, then charitable, judgment, and all our actions be such as will stand the light of the noonday sun.

Will you kindly give this letter immediate publicity in your journal.

F. C. HUSBAND.

[*Oral Health* is pleased to publish the foregoing letter. The disclaimer referred to was issued by the University of Toronto and Royal College of Dental Surgeons and forwarded to all dental journals for publication.—Editor.]

It's Malnutrition

If you're eating white flour products,
With the brown bread on the shelf,
If you're eating meat and haddocks,
Just to please your inner self,
If you gulp your meals down hasty,
If you're munching creams and pastry,
Just because they're so darn tasty,
Malnutrition soon you'll greet.

If you're feeling punk and dizzy,
And you're careless of the pace,
If you cannot drive your "Lizzy,"
And there's pallor on your face,
If you're feeling sad and chilly,
And your think tank's acting silly,
With your appetite gone nilly,
Malnutrition's got you beat.

If you have a torpid liver,
And your tongue's as white as chalk,
If you've ceased to be a giver,
And your sympathies all balk,
Better turn to peas and lettuce,
And the brown bread that they get us;
Then if things soon cease to fret us,
Malnutrition's in retreat.

Take to bran, and milk and cabbage,
Bring the vegetables in line—
For the meat stuff makes us savage,
When our spirits should be fine—
Then the rheumatiz that's jabbing
Will desist its direful stabbing;
And if smiles replace your crabbing,
Malnutrition's in defeat.

Toronto, April, 1925.

—Malcolm Weethee Sparrow, D.D.S.

FROM this day on, I mean to do
the best I can. If I am right,
time will prove it. If I am not
right, ten angels swearing I am
right will not make it so.

—*Lincoln.*



PAUL R. STILLMAN, D.D.S., F.A.C.D., F.A.A.P.,
NEW YORK CITY.

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Differential Diagnosis of Early Periodontal Lesions*

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THE first thought which occurs to me as I consider the subject for this paper is the conviction, which has been growing stronger through the years spent in the treatment of periodontal disease, that early recognition of the symptoms and treatment of incipient cases constitute the most important duty of the dentist. While the treatment of advanced cases provides an opportunity for obtaining spectacular results, the successful management of the incipient case furnishes an even greater degree of personal satisfaction. In the successful treatment of the advanced case we may restore a mouth to health and retain in it teeth which would otherwise have been lost, thereby winning the gratitude and appreciation of the patient. But, even with the highest attainable degree of success, we are, nevertheless, forced to admit that gingival and alveolar tissue has been lost which can never be entirely restored. Alveolar and gingival contours have been altered in such a way as to complicate to a high degree the problem of future care of the mouth. Too much cannot be said regarding the importance of the normal periodontium as it relates to the conditions which govern the health of the mouth. The dentist who will institute measures for checking disease of the periodontium, on the appearance of its earliest discernible signs, has performed an infinitely more valuable service, and will derive therefrom a corresponding satisfaction.

* Presented in form of brochure at meeting of Ontario Dental Association, May, 1925.

In preventive treatment the patient is enabled to escape a disease from which he has never suffered. It is, therefore, impossible for him to appreciate to the full the service he has received. The dentist who renders this service is, therefore, deprived of one of the emoluments of his profession, for I think we all reckon, as part of the compensation for pursuing our arduous work, the commendation of our patients. We may well liken the situation to that furnished by a comparison between the life-saver at the bathing beach and the sanitarian who watches the water supply of a great city. The latter, through his unceasing vigilance, detects at first appearance the bacteria of disease and, by the measures which he puts into effect, saves hundreds or perhaps thousands of lives. For this he receives a salary only. On the other hand, the guard at the bathing beach may have occasion, perhaps only once in a season, to rescue an exhausted swimmer. For this most worthy act he receives the plaudits of the multitudes and perhaps a medal, in addition to his pay. Let me point out the analogy by comparing the appreciation evoked by the placing of a beautifully executed bridge, with that called forth by the most skilful prophylactic treatment. I think it is safe to say that there is a definite, although subconscious, realization of these facts in the minds of most dentists, and that the situation is one which unconsciously influences their attitude toward preventive dentistry.

As the trend of the dental profession has in recent years been more and more in the direction of prevention, so has the trend of periodontic practice been more consciously directed towards this end. It is accordingly with the greatest satisfaction that we have received from that sterling scientist, Harold Keith Box, the information which enables us to prosecute even more successfully our endeavors in this field. It is, of course, gratifying to me personally to have his scientific observations so fully confirm the beliefs which I have championed for a number of years. My clinical observations regarding the etiologic factor to which I gave the name "traumatic occlusion" left me in a position of championing an hypothesis which could only be acceptable after it had been proven by means of histologic research. But now, with recent researches of Box, I take a natural satisfaction in having my work authenticated. But this thought is submerged in a broader satisfaction which comes from the realization that we now have for the first time a sound theory on which we may build a programme for prevention. I refer here to Box's "Studies in Periodontal Pathology,"** and more particularly to the "Signs of Incipient Periodontal Disease" which he has collected as a part of that subject. Since these signs cover all clinically recog-

** Studies in Periodontal Pathology, Harold Keith Box, D.D.S., Ph.D., F.A.A.P., Canadian Dental Research Foundation, Toronto.

nizable indications of early periodontal disease yet published, it will be most profitable for us to make these signs the foundation of this presentation.

Box says, in introducing this subject:

"Since our studies in periodontal pathology have indicated clearly the nature of the disease processes and have justified an optimistic attitude as to the possibility of elimination of these lesions through treatment, early diagnosis becomes of the first importance."

What Box does not say in so many words in his "Signs of Incipient Periodontal Disease," but what he unmistakably leads us to infer after the entire Bulletin has been studied, is that traumatic occlusion frequently occurs as an etiologic factor in the production of these signs of early disease. For the relation between that factor and Rarefying Pericementitis Fibrosa, as described in Bulletin No. 7, has, in my own mind, been incontrovertibly proven. These incipient clinical signs which he has described, and which are doubtless familiar to most dentists, will now be discussed here in detail. We are, therefore, justified in taking Box's work as a background, and in linking together the etiologic factor of traumatic occlusion with the occurrence of lesions which have previously been considered by most writers to have no connection with this pathogenic agency.

I hope I may be permitted to refer at this point to the "Text-book of Clinical Periodontia," of which I am one of the authors. Dr. McCall and I have been criticized more than once as having over-emphasized the subject of traumatic occlusion in this book. It is highly gratifying at this time to have our clinical observations so conclusively corroborated by the more scientific observations of Box.

With your permission I shall read Box's "Twenty Signs," and interpolate such comment as may seem pertinent.

"Sign No. 1—Traumatic Crescent. A crescent-shaped zone of abnormally deep color, never extending completely across the gingival border of the tooth, and being confined as a rule to a segment about $1/6$ of the circumference of the root. It may be superimposed over a mild generalized gingivitis, but frequently occurs in an otherwise healthy gingiva. It is considered to be a sign of a localized circulatory disturbance in the pericementum, and is, as a rule, associated with traumatic occlusion."

Before considering this sign in detail, it will be well to discuss briefly the effects which traumatic occlusion usually produces in the pericementum. Inasmuch as traumatic occlusion is a stress in excess of the normal, it follows that it will produce an abnormal compression of the vessels in the pericementum. This compression is, of course, intermittent. It therefore follows that the circulation in the pericementum is alternately emptied and flushed to an abnormal degree. This develops an irritation, the result of which is, in many instances, that some of the vessels become enlarged and constantly contain a larger amount

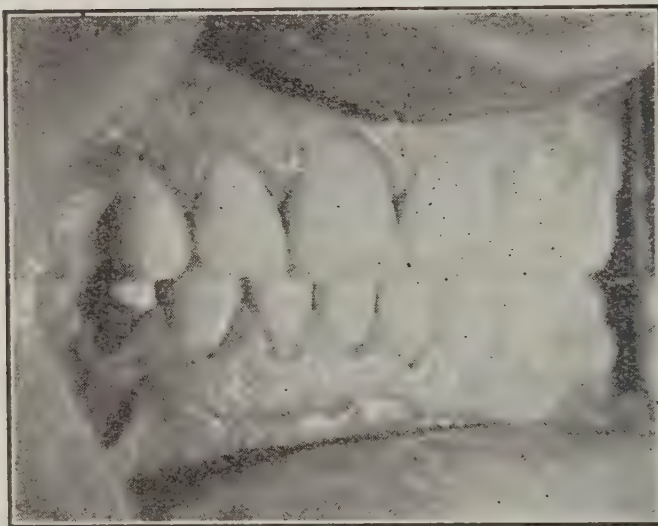


Fig. 1.

Sign No. 1.—Traumatic Crescent.

This sign may be observed on the gingival margin of the lower central incisors and the right lateral incisor.

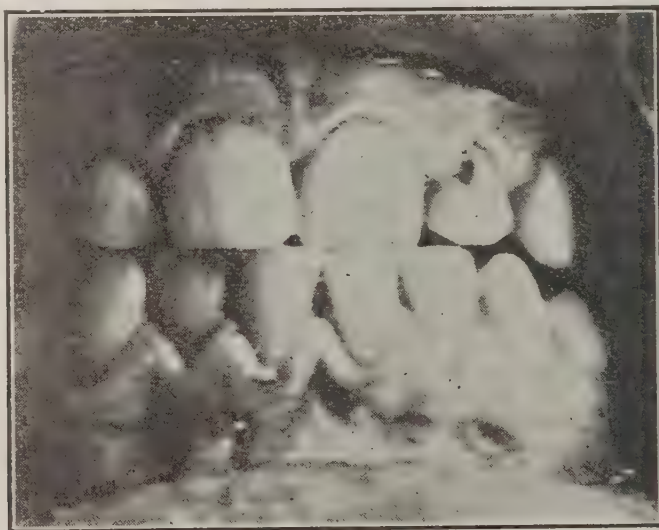


Fig. 2.

Sign No. 1.—Traumatic Crescent.

This photograph shows a traumatic crescent on the gingival margin of the right lower central incisor.

of blood than is normal for them. This is congestion.* The congestion

* "If the hyperemic condition be long continued—chronic congestion—the walls of the involved vessels may become thickened; there may be interstitial fibrous hyperplasia in the affected region; or there may be varying degrees of cell degeneration and atrophy. Thus function may be interfered with or suspended."—General Pathology; Delafield and Prudden.

may occur throughout the periodontium, or it may be localized in one part only, according to the degree and direction of the stress to which the tooth has been subjected.

In reference to Traumatic Crescent: It is well to call attention to the fact that the blood supply of the marginal gingiva is derived in large part from the vessels of the pericementum. It therefore follows that congestion in the pericementum will tend to produce congestion in the marginal gingiva, even when that tissue has been subjected to no other form of irritation. This statement holds true whether the entire pericementum is involved in congestion, or whether a part only is affected. What Box has termed the Traumatic Crescent is a manifestation of a circulatory disturbance localized in a part of the pericementum. That part of the marginal gingiva which derives its blood supply from the affected portion of the pericementum will exhibit a deep-red coloration, which is marked off rather sharply from the remaining portion. Box's observation that this sign is, as a rule, associated with traumatic occlusion is undoubtedly true.

"Sign No. 2—Congestion of Marginal Gingiva. This zone of congestion extends completely across the gingival border of the tooth. It is regarded as a sign of generalized pericemental circulatory disturbance. It is commonly found in cases exhibiting an end-to-end occlusion."

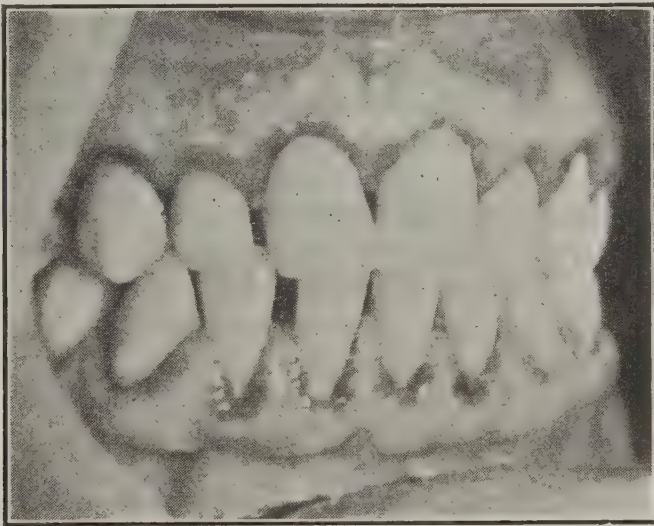


Fig. 3.

Sign No. 2.—Congestion of the Marginal Gingiva.

The entire marginal gingiva is congested. The "end-to-end" occlusion is not frequently found in youth. This example has, however, the very reverse of the "overbite." Occlusal wear would produce the "end-to-end" effect in this case, depending upon the resistance of the periodontium to traumatic occlusion which was undoubtedly present when this photograph was taken.

With Box's conclusions as to the etiology of this condition we can heartily agree.

Teeth having an "end-to-end" occlusal relation become deformed through occlusal wear much earlier in life than those in normal occlusion. When deformity enters in, function always becomes deranged in some degree. With a disbalance of function, symptoms develop and congestion of the marginal gingiva is most frequently, though not invariably, the clinical inflammatory sign of reaction to injury.

It is necessary, however, to call attention to the fact that a generalized congestion of the marginal gingiva may be produced through the action of other agencies than traumatic occlusion. It may be commonly observed in the untidy or neglected mouth, or in one having insufficient function. Also in the mouth where metallic or other poisoning enters into the etiology. Diet is a factor which unquestionably influences the health of the periodontium. Where traumatic occlusion and dietary deficiencies are coincidental, the effect will be profound. In such a case it will also be observed that the selectivity of the lesion for the tissues affected by the traumatic occlusion is most pronounced. On the other hand, where function is normal, dietary deficiency will exhibit an evenly distributed lesion. We observe this frequently in scorbutic conditions, particularly when occurring in a young person.

Accumulation of calculus will produce a congestion of the marginal gingiva, such as is described by Box in this sign. It is, therefore, necessary to make a distinction, not only as to the presence of the calculus, but its probable source. The point which I desire to make is that what we call serumal calculus is the product of the seepage of serum from a congested tissue, together with tissue detritus which has become deposited on the cementum. It therefore follows that congestion in the marginal gingiva will frequently be followed by the deposition of serumal calculus. We must, therefore, ask ourselves, when we observe this condition, whether the calculus is the cause or the result of the gingival congestion. My own opinion is that it occurs most frequently as a result. As Box has observed, the "end-to-end" occlusion is perhaps the most potent, although not the only cause of Sign No. 2.

"Sign No. 3—Mobility No. 1. This is a degree of mobility so slight as to escape casual observation. It requires careful manipulation and the application of considerable digital pressure, in many instances, for its detection. It seems to be associated with Rarefying Pericementitis Fibrosa, since, in this disease, varying numbers of the pericemental fibres have been replaced by this soft, yielding new tissue."

Since Box discovered Rarefying Pericementitis Fibrosa and has called attention to its effect in producing radiographic rarefaction and resorption of alveolar bone, it is evident that in many cases the first observable sign of the presence of this lesion will be a slight mobility of the tooth. It is a new thought to many of us that periodontal disease may exist for a considerable period of time before any visible evidence of infec-

tion or congestion is observable. It will be apparent at once that the occurrence of the slightest abnormal mobility will indicate the presence of this lesion. It is also a striking and important fact that Box attributes Rarefying Pericementitis Fibrosa in large part to traumatic occlusion.

The degree of mobility of Sign No. 1 is so slight that only upon the application of considerable pressure by the finger on the opposing tooth may it be detected. It may be detected, in many instances, by placing the tips of the fingers lightly upon the tooth or teeth to be examined, and asking the patient to close the jaw and produce a slight lateral or protrusive movement. Movement of the tooth in its socket under this test will frequently be capable of detection by the eye as well.

It is necessary to make a distinction regarding Mobility No. 1. It will be recalled that in childhood and youth the pericementum is normally thicker and the alveolar process is more resilient than in later life. "Mobility No. 1" is, therefore, to be expected in youth. When observed in patients below the age of fifteen it should not be regarded as an indication of a pathological condition, except when accompanied by other signs of disease. When occurring in later life it is, however, an invariable indication of an established disease process.

A marked mechanical disharmony of the occlusion in youth will frequently cause a loosening of the tooth so affected. I have observed instances of traumatic occlusion in cases as young as ten or eleven years of age. In all of these cases there was an accompanying gingival hypertrophy as well as mobility and periclasia about the affected teeth. I may add that these symptoms of disease disappeared at a surprisingly rapid rate as soon as the teeth were cleaned of their detritus and the traumatic occlusion was corrected. It will, of course, be unnecessary to elaborate on the fact that chronic advanced pulpitis and incipient pericementitis of apical origin will also produce slight mobility of the tooth. Differential diagnosis for the exclusion of these conditions should, of course, be made.

"Sign No. 4—Recession of the Marginal Gingival Line. Taking the amelo-cemental junction as a fixed landmark, it is often found that the gingival margin shows an altered relationship to this line. In the average case, the margin of the gingiva is approximately two millimeters above the amelo-cemental line. Recession of the gingival margin toward this line is usually indicative of alveolar crest resorption. For example, a recession of the marginal gingiva which just exposes the amelo-cemental line will probably indicate a crest resorption of two millimeters. Exposure of the cementum will indicate an increased alveolar resorption of a corresponding degree."

We are, of course, familiar with the fact that the so-called free margin of the gingiva will, in a normal case, cover approximately two mm. of the enamel, and that the actual attachment of the gingival tissue to the tooth surface normally occurs at the junction of the enamel with the



Fig. 4.

Sign No. 4.—Recession of the Marginal Gingival Line.

There is more or less recession of all the labial gingivae here illustrated. Note the "synthetic" fillings in the right upper lateral incisor; the left lower central incisor and the left lower lateral incisor. Labial cervical caries always occurs in the presence of a marginal gingivitis. This phenomenon is also a symptom in approximal caries of the bicuspid and molars. The coincidence should make dentists pause and think of the value of maintaining the circulation in the marginal gingivae.

cementum. Less obvious is the fact that the crest of the alveolar process in a well-developed specimen normally lies about two mm. below the amelo-cemental junction. What we usually fail to realize is that the recession of the marginal gingiva is invariably preceded by resorption of the alveolar crest. This being the case, it should be obvious that we need to focus our attention on the agencies which will produce rarefaction and resorption of the alveolar crest. Box has shown most conclusively the mechanism by which this resorption is brought about. Study of his preparations indicates clearly the fact that traumatic occlusion is the most prominent of these agencies. The clinical fact to be determined in diagnosis, however, is whether the case in study possesses a distinguishable traumatic occlusion upon the tooth so affected. Recession does occur in cases where there is no occlusion of the teeth. This may appear to some as a valid reason for discarding the traumatic occlusion hypothesis. But, if we will consider the fact that traumatic occlusion results in a disturbance of function, and that disuse also has disturbance of function and atrophy as its most marked clinical effect, we will come to realize that function, within the range of normal, is the most important requisite of tissue health. The tooth brush, used in a non-physiologic manner, certainly has a place in the etiologica! picture.

It is a striking commentary on the relative importance of traumatic occlusion and the tooth brush, in causing gingival recession, however, that this recession may frequently be observed on surfaces which obviously have only a bowing acquaintance with the tooth brush.

When the "across brushing method" is applied over the surface of a root which is being subjected to traumatic occlusion, the resulting recession is very marked. This is especially so if the part of the alveolar process receiving the major portion of the stress coincides with the part of the gingiva which is being injured by the brush. The appearance of a gingival recession in any part of the mouth is to be suspected, therefore, of having been produced, either partly or wholly, by traumatic occlusion and its presence, if possible, carefully determined before treatment is outlined.

"Sign No. 5—Asymmetric Recession of the Marginal Gingival Line. In many cases, recession of the gingival margin involves only part of the normal gingival line. This may occur in the median line of the tooth or on either side of this line, thus disturbing the normal symmetry of the curve of the gingival margin. It indicates a localized resorption of the alveolar crest."



Fig. 5.

Sign No. 5.—Asymmetric Recession of the Marginal Gingival Line.

The absence of symmetry of the gingival line may be seen throughout, but the condition has developed to the point of deformity on two lower incisors.

This sign, like the one preceding, is an indication of alveolar crest resorption. If anything, it points more significantly to the factor of traumatic occlusion than Sign No. 4. In the normal case the marginal gingiva describes a symmetrical parabolic curve. This curve begins at the apex of an interproximal gingival papilla and continues across the face of the enamel, ending at the apex of an adjacent interproximal

gingival papilla. In certain instances the symmetry of this curve is undisturbed when recession takes place. But, in Sign No. 5, the original symmetrical curvature is disturbed, viz., it becomes asymmetrical, so that a peak is produced, either in the centre line or to one side of the centre line. This is a very definite indication of localization of the effects of excessive stress in a corresponding part of the periodontium. It is produced through disturbance of vascular function.

"Sign No. 6—Recession of the Alveolar Crest Line. The crest of the alveolar process in the average normal case is approximately two millimeters below the amelo-cemental line, which has been adopted as a fixed landmark. Disturbance of the normal relationship between these lines is a manifestation of recession of the alveolar crest line. This may usually be detected by careful study of the radiograph."



Fig. 6.

Sign No. 6.—Recession of the Alveolar Crest Line.

Note how the alveolar crest line dips down between the two central incisors. The amelo-cemental junction is clearly distinguishable on these teeth.

Again we recall the fact that alveolar crest resorption is frequently produced by traumatic occlusion. When the radiogram shows a recession of the interproximal alveolar crest, the etiology of the case may be considered definitely established. But it frequently happens that crest resorption occurs upon the labial or buccal area, and that this area of the alveolar crest lies superimposed upon the tooth itself, in a dental radiogram. The denser structure of the tooth usually prevents the shadow of this portion of the crest to be recorded on a film. For this reason too much reliance cannot be placed on diagnosis from the radiogram alone, in disclosing labial or buccal bone lesions. It does not usually appear in the film unless the resorbed area extends into the interproximal crest. On these surfaces, however, and particularly on the labial area, there is usually an indication of recession of the marginal gingiva. Also that the bone recession usually precedes or is at least coincidental with gingival recession. It will be interesting to note that this condition is simply a step in the progression leading to a recession of the marginal gingiva.

"Sign No. 7—Increased Radiolucency of the Alveolar Crest or Lamina Dura. This is an indication of a rarefaction of the alveolar bone in these locations."



Fig. 7.

Sign No. 7—Increased Radiolucency of the Alveolar Crest, or Lamina Dura.

The radiogram illustrates radiolucency of the crest of the alveolar process. It also shows resorption of the crest line.



Fig. 8.

Sign No. 7.—Increased Radiolucency of the Alveolar Crest, or Lamina Dura.

In this radiogram, a fine example of increased radiolucency of the alveolar crest may be seen between the lower right second bicuspid and first molar.

Radiolucency of the alveolar crest is, of course, a condition which precedes the resorption of this part of the bone. This sign is therefore closely related to Sign No. 6, viz., "Recession of the Alveolar Crest Line." In certain occlusal relationships the stress of a traumatic occlusion may be distributed along the entire side of the socket wall. This will naturally induce a localized rarefaction of the lamina dura. Under these circumstances, this condition will show a close relationship to Sign No. 3, viz., Mobility No. 1.

"Sign No. 8—Disturbance of Normal Contour of the Alveolar Crest. Frequently the alveolar crest presents in the radiograph a slightly eroded appearance, disturbing its characteristic normal symmetry. This is due to a localized resorption of the alveolar crest."

The disturbance of the symmetry of the alveolar crest is difficult of detection in the radiogram in its earliest stages. It may, however, be readily detected when the disease has been in progress over a considerable period of time. It should be noted that along with this sign, there may also be observed characteristic changes in the overlying gingival tissue which will be more easily detected. This is particularly noticeable, radiographically, in the interproximal alveolar crest of the lower incisors, where the "eroded" appearing border of the bone shows as a ragged edge. Usually the clinical fact that traumatic occlusion is present may

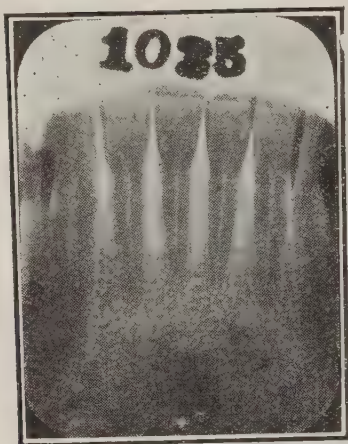


Fig. 9.

Sign No. 8.—Disturbance of Normal Contour of the Alveolar Crest.

In this radiogram the alveolar crests are of normal contour. Also note normal lamina dura.



Fig. 10.

Sign No. 8.—Disturbance of Normal Contour of the Alveolar Crest.

This radiogram exhibits abnormal contour of the alveolar crests. In Fig. No. 7 the crest of the alveolar process shows a ragged border.

be determined by the interpretation of the radiogram alone, as Pollia** has shown. On the other hand, a very constant clinical sign is "Shortening of the Crest of the Septal Gingiva," which will presently be described in Box's Sign No. 11. This is particularly noticeable in

"Sign No. 9—Increased Widening of the Pericemental Space. When complete rarefaction of the lamina dura takes place, there is exhibited in the radiograph, in certain zones, a definite widening of the line which represents the pericemental space."

This sign is the normal sequel to Sign No. 7 which is the increased radiolucency of the lamina dura. When the lamina dura is resorbed, its place is taken by the new tissue in the lesion termed Rarefying Pericementitis Fibrosa. As this lesion is radioparent, the radiogram will usually show a dark line, which is wider than that which is observed when the pericementum is normal.

"Sign No. 10—Mobility No. 2. When the lamina dura is destroyed to any extent about the tooth, there is, of course, an increase in the soft tissue content between the tooth and the remaining alveolar wall. This naturally permits an increased mobility beyond the normal and beyond that designated as Mobility 1."

It will be apparent from the nature of the changes which have brought about this degree of mobility, that the condition is actually beyond the incipient stage. To one not familiar with the earlier signs of periodontal

** Radiography in Early Dental Disease, Jos. A. Pollia, Journal of Dental Research, March, 1923, Volume V., No. 1.



Fig. 11.

Sign No. 9.—Increased Widening of the Pericemental Space.

(This radiogram is one of Dr. Box's.)

The interproximal alveolar process illustrates the widening of the space between the right lateral and central incisors.

disease, this will frequently be the first indication of a derangement of these tissues.

"Sign No. 11—Shortening of the Crest of the Septal Gingiva. When an alveolar resorption of the septal alveolar crest has occurred, there will usually take place a concomitant dropping away of the septal gingiva. This will be evidenced clinically by the appearance of spaces between the teeth which were formerly filled with gingival tissues."



Fig. 12.

Sign No. 9.—Increased Widening of the Pericemental Space.

This radiogram shows a definite widening of the pericemental space about the lower left second bicuspid. This tooth was in traumatic occlusion and exhibited an increased mobility beyond the normal, designated as Mobility 2.



Fig. 13.

Sign No. 11.—Shortening of the Crest of the Septal Gingiva.

The septal gingiva which is free from disease fills the interproximal space and has a sharp pointed apex. In Fig. 13 there is exhibited an abnormal condition in which the septal gingivæ between the lower incisors do not reach to the contact points, thus creating spaces between these teeth.

Resorption of the alveolar crest is frequently localized between adjoining teeth. It will naturally follow that the recession of the gingival tissue will be most pronounced in that region. When this has taken place, so extensively as to have left perceptible spaces between the teeth, the condition may be considered to have passed the incipient stage. As in the case of Sign No. 10, this condition will nevertheless be the first indication of disease which will intrude itself on the consciousness of the dentist.

On the other hand, resorption of the alveolar crest and recession of the gingival tissue may occur, but usually with a concomitant hypertrophy of the gingival papillæ. Under these circumstances, the interdental spaces may seem to be satisfactorily filled with gingival tissue. On careful examination, however, it will be found that the crest of the papilla is slightly blunted, and that its color is slightly deeper than the normal. Such a condition usually indicates vascular infection as well as congestion. It is not to be viewed with complacency.

"Sign No. 12—Linear Depressions in the Alveolar Mucosa. These lines are often better shown on models than in the mouth, but may usually be demonstrated in the mouth if the light is properly directed and the mucous membrane is dried. They extend parallel to the long axis of the root and overlies the septal bone. These depression lines are to be differentiated from the normal depressions between the alveoli of adjoining teeth. These lines are characterized by being sharply drawn."

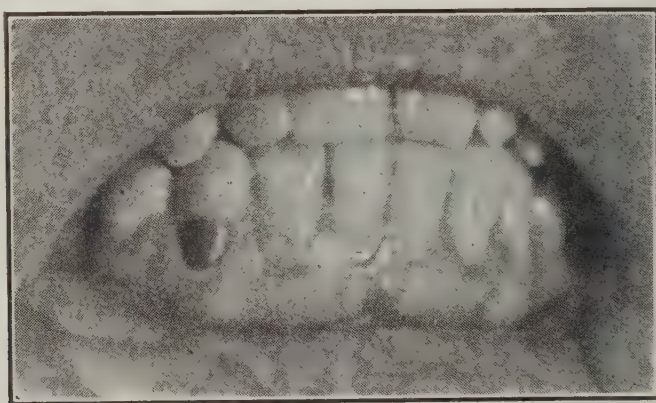


Fig. 14.

Sign No. 12.—Linear Depressions In the Alveolar Mucosa.

As Box has observed, these lines are difficult to see. This photoprint shows the "lines" anterior to one cuspid and posterior to the other. In fact, the distal line near the gold filling appears to be two parallel lines.

This sign will usually be observed in those cases in which the alveolar structure is heavy and well formed. In such cases the reaction to traumatic occlusion is not, in the incipient stages, manifested very strikingly in the region of the alveolar crest. This sign indicates the beginning of a deep and serious involvement of alveolar bone. It is frequently accom-

panied by a color change localized in the tissue adjacent to the depression, which itself looks much like the lines in the palm of the hand.

"Sign No. 13—Stillman's Clefts. These are clefts occurring in the gingival border, occasionally in the centre line of the tooth, but more commonly to one side of this line. Two clefts are frequently noted on the same tooth. Although the underlying tooth surface may not be visible, due to the apposition of the divided tissue, it is invariably possible to pass an instrument through any portion of the cleft to the tooth surface. The writer regards these clefts as essentially small pockets in which the ulcerative process has extended through to the labial surface of the gingiva."

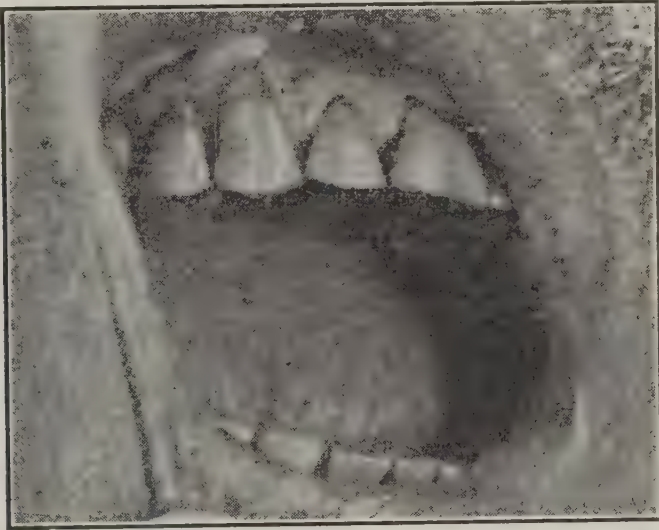


Fig. 15.

Sign No. 13.—Stillman's Clefts.

This sign may be seen in the photograph over the cuspid in the "one o'clock" location.

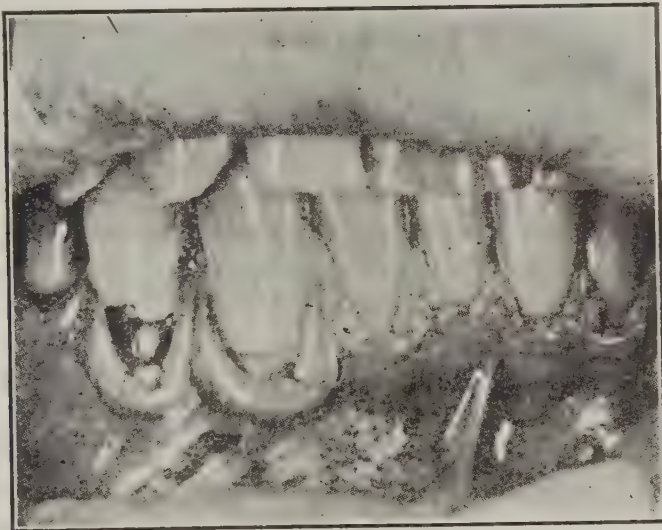


Fig. 16.

Sign No. 13.—Stillman's Clefts.

This photograph also shows the cleft in a lower cuspid gingiva.

In discussing this sign, let me first express my appreciation of the honor which Dr. Box has done me, in giving my name to these clefts. This was in recognition of the fact that I seemed to have been the first to call attention to the significance of these abnormalities.*** It has been my observation, and this is borne out by Box himself, that these clefts are invariably caused by traumatic occlusion. They seem to indicate the localization of an acute congestion and infection in a circumscribed spot on the marginal gingiva. They appear most frequently as coincidentally with Sign No. 15, viz., "Festoons."

"Sign No. 14—Absence of Stippling. In the normal gingiva the color is not a uniform pink, but presents a translucent stippled appearance of alternating spots of lighter and darker shade. When the normal gingiva is dried, it presents a somewhat velvety or mossy surface, indicative apparently of a normal circulation in the capillary loops. There is frequently observed a condition in which this mossy stippled appearance is lost and the surface is shiny, even when dried and of a uniform color. The author considers this usually to be a sign of oedema in the gingiva."

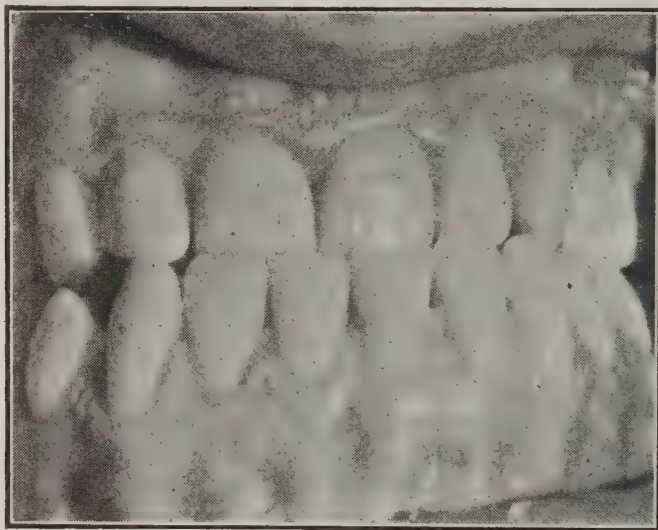


Fig. 17.

Sign No. 14.—Absence of Stippling.

This print illustrates very perfectly Sign No. 14. Note the shine on the gingiva on the lower labial over the two central incisors.

This is frequently found in cases exhibiting a traumatic occlusion, and this is naturally to be expected when we recognize the frequent vascular derangement found as a reaction to this form of injury. It may, however, come about from the action of other pathogenic agencies. In other words, any combination of etiologic factors which will produce oedema, will also produce this condition, for instance, incipient abscesses of

*** Early Clinical Evidences of Disease in the Gingiva and Pericementum, Stillman, Paul R., Journal of Dental Research, Vol. III., 1921, p. xxv.

various types, mouth breathing, etc. Differential diagnosis is important. This sign is usually found as a symptom when there is a deep underlying periodontal pocket. In this case it will, of course, be evident that it is not a sign of incipient disease. But it is frequently encountered when there is no pocket formation.

"Sign No. 15—Festoons. When through the action of a certain grouping of etiologic factors, a hyperplasia of the marginal gingiva is induced, it is frequently manifested clinically by the occurrence of a linear depression outlining the marginal gingiva. The marginal gingiva presents a characteristic uniform thickening, which, however, in the early stages, does not involve the margin itself. In the early stages, too, there is no deviation from the normal color. McCall has called attention to the frequent relationship between these festoons and traumatic occlusion."

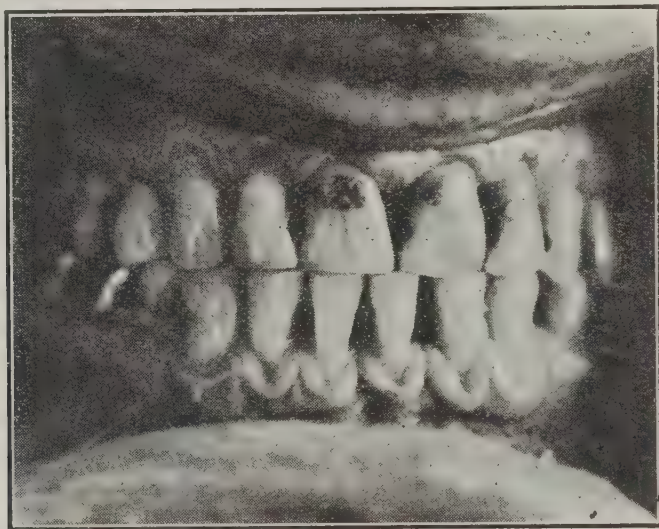


Fig. 18.

Sign No. 15.—Festoons.

Festoons are shown in Fig. 18 about the upper and lower centrals, laterals and cuspids. Another fine example may be noted in Fig. 16, about the lower right cuspid and first bicuspid.

The "festoons" while indicating an hypertrophic condition of the marginal gingiva, are usually found in cases in which a slight recession of the gingival attachment has taken place. It thus will be seen that in spite of this recession the resistance of the tissue is so high that the reaction to the injury results in an actual overgrowth, this being manifested most prominently in that part of the tissue which lies free upon the tooth surface. It is the junction of the hypertrophied portion of the gingiva with the part which is undergoing atrophic change which is responsible for the line which bounds the festoon. In incipient cases the essayist always looks for traumatic occlusion as one of the etiologic factors. And, it has been his experience that when traumatic occlusion has been found to be present and has been corrected, these festoons gradually become

resorbed. He depends in treatment largely upon the subsequent physiologic influence of the tooth brush, correctly applied, as the means through which this change to normal is brought about.** Recently in discussion of this subject, Dr. I. Hirschfield of New York City exhibited stereopticon photographs of a case in his practice having these festoons, and at the same time demonstrated to the essayist's satisfaction that the case was one having non-occlusion except upon the teeth in the molar region. He, therefore, believes it is not accurate to state the invariable coincidence of traumatic occlusion in cases of Festoon. Nevertheless, he does believe that no case having traumatic occlusion as one of its etiologic factors, was ever successfully treated and the hypertrophic gingival festoon actually resorbed in the presence of an uncorrected traumatic occlusion.

"Sign No. 16—Injection of Blood Vessels in the Marginal Gingiva. With the aid of an ordinary magnifying glass, there is to be seen, in many cases, a typical dilatation of the blood-vessels in the gingival margin. This is to be considered as an indication of early infection in the marginal gingiva."



Fig. 19.

Sign No. 16.—Injection of Blood-Vessels in the Marginal Gingiva.

This print illustrates the sign, but very poorly. Note the marginal gingiva of the upper central incisors. Infection has involved the marginal gingiva in this location, and there is capillary stasis in the vessels.

This sign is an indication of a venous hyperemia which has been in existence for a long time. It will usually be found in these cases that but little loss of tissue or attachment has occurred. In this respect, it may, however, be properly considered as an incipient sign. It usually is to be observed in mouths which have withstood the influence of traumatic occlusion for a long period of years without appreciable tissue damage.

** Physical Culture of the Gingiva, Paul R. Stillman, Dental Cosmos, October, 1924.

"Sign No. 17—Increased Depth of the Gingival Crevice. The normal gingival crevice measures in the average case approximately two millimeters. Any increase in its depth beyond this point must be regarded with suspicion. It is to be regarded as a sign of early pocket formation in the cemental gingiva. This lesion is to be detected only by the use of a suitable diagnostic probe."

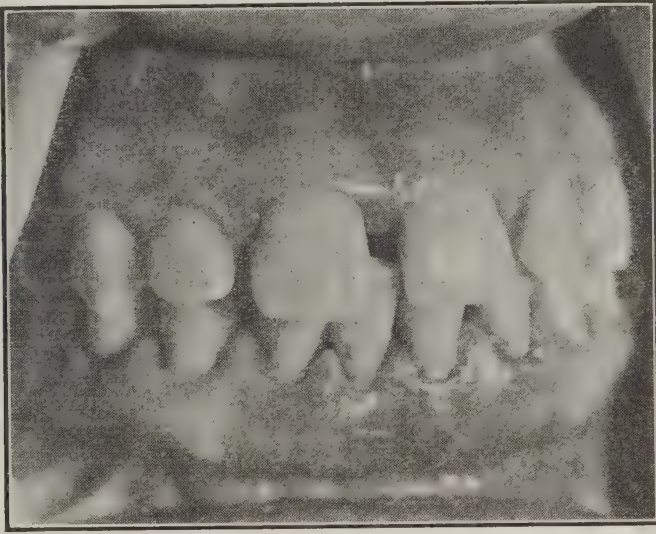


Fig. 20.

Sign No. 17.—Increased Depth of the Gingival Crevice.

Note the right upper central incisor gingival border. At ten and two o'clock on the curve of the gingiva, there are breaks in its continuity. These breaks indicate pocket formation.

This sign is essentially serial to Sign No. 4, viz., "Recession of the Marginal Gingival Line." In other words, it is an indication of the resorption of the alveolar crest, and the detachment of the cemental gingiva. In Sign No. 17, however, the marginal gingiva usually is found to have undergone a slight hypertrophy and because of this fact has maintained clinically its original position in relation to the amelocemental line. Recession does not usually occur until treatment has been instituted, and healing of the cemental gingival lesion has occurred. Recession of the gingiva in such a case is indicative of the damage sustained by the alveolar crest prior to treatment.

"Sign No. 18—Epithelial Nodules. There are occasionally to be seen on the surface of the gingivae, small, slightly elevated nodules. They are of a lighter color than the surrounding tissue and in shape are usually round or oval. They usually indicate a period of long-standing venous congestion."

Box states that these nodules indicate a period of venous congestion. With this conclusion, I cannot entirely agree and am inclined rather to attribute them to a slight arterial hyperemia. If this is the case, they have a lessened pathologic significance. They seem to be pathologically



Fig. 21.

Sign No. 18.—Epithelial Nodules.

The epithelial nodules may be seen on the alveolar gingiva of the right lower cuspid. They are not common.

among the least portentous of the signs which we are discussing. They appear to the essayist as very small benign tumors of epithelial origin. No opportunity has occurred where he could study the cell relation in the histologic specimen.

“Sign No. 19—Distended Veins in the Mucosa. In many cases there are to be observed dilated blood-vessels of a purplish color, arising in the septal cemental gingiva and traceable for a considerable distance in the alveolar mucosa. They usually indicate the establishment of infection in the cemental gingiva at the base of the interproximal crevice.”

We can unquestionably agree with Box in his conclusion that these veins indicate a state of infection in the cemental gingiva. They are to be regarded seriously inasmuch as they point to an insufficient drainage of blood from the marginal and cemental gingivae. In the essayist's experience, traumatic occlusion has been a constant etiologic factor in cases of Sign No. 19. These veins appear near the surface in the alveolar mucosa and are frequently traced almost to the region over the root apex. The tissue adjacent to the base of the gingival crevice is found to be in a state of incipient ulceration, with pus present in the gingival exudate. It may be pertinent to call attention to the importance of securing and maintaining adequate blood drainage in the treatment of this type as well as all other forms of periodontal disease. We need have no concern regarding the influx of arterial blood if we see to it that the venous circulation is adequate.

"Sign No. 20—Pus-Cells in the Crevicular Exudate. Frequently when clinical signs of pus are lacking, and the gingival crevice is of normal depth, a microscopic examination of the crevicular fluid will reveal the presence of pus-cells. This may safely be regarded as evidence of a suppurative gingivitis."

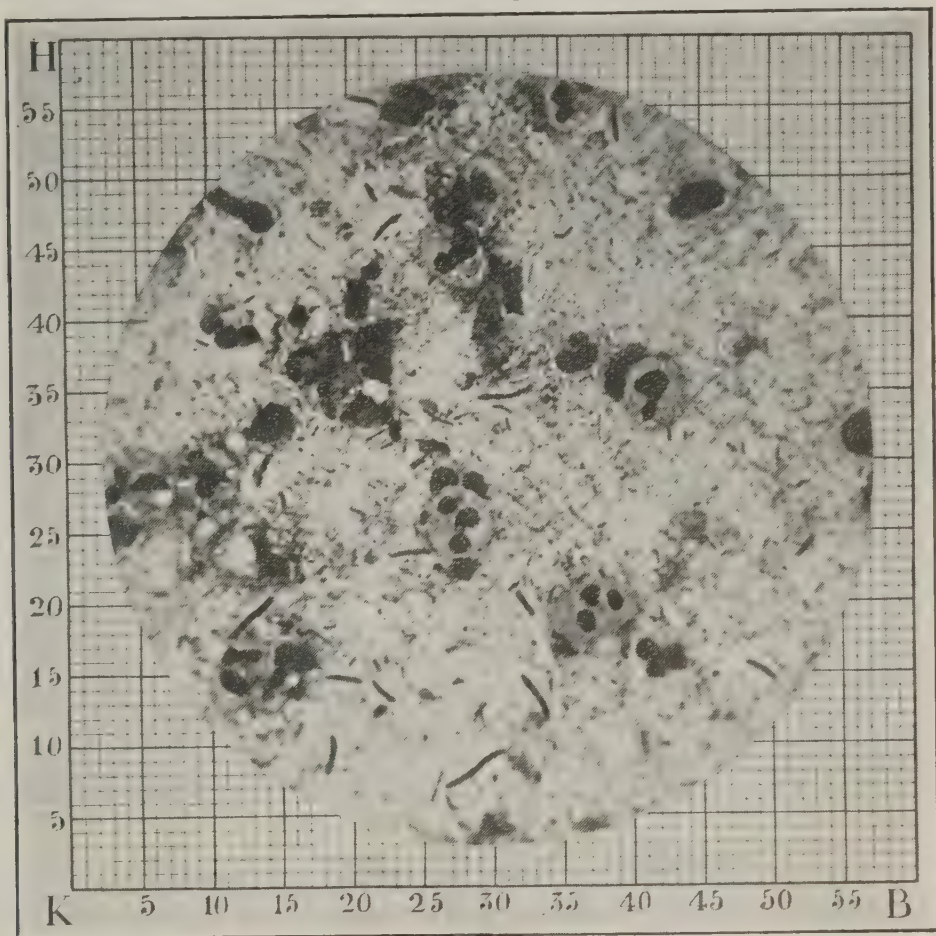


Fig. 22.

Sign No. 20.—Pus-cells in the Crevicular Exudate.

In purulent exudation, leukocytes are abundant, serum is present in varying quantities and fibrin usually scanty or lacking. Of the leukocytes, the polymorphonuclear predominates. This type of exudation is commonly known as pus, and its cellular elements are termed pus-cells. Fig. 22 shows a photomicrograph of a smear from a gingival exudate, the gingival crevice being of normal depth and the gingival tissues of almost normal color and tone. Note the pus-cells present, also numerous bacteria.

HK 25 KB 28 } Pus-cells (polymorphonuclear)
HK 20 KB 38 }

It is to be regretted that so few of us make habitual use of the microscope, especially when studying our cases for evidence of pathologic conditions. We are prone to rely upon the evidence of our unaided vision. Not until a perceptible deformity or redness has made its appearance, or until pus is perceptible to the naked eye, do we consider that

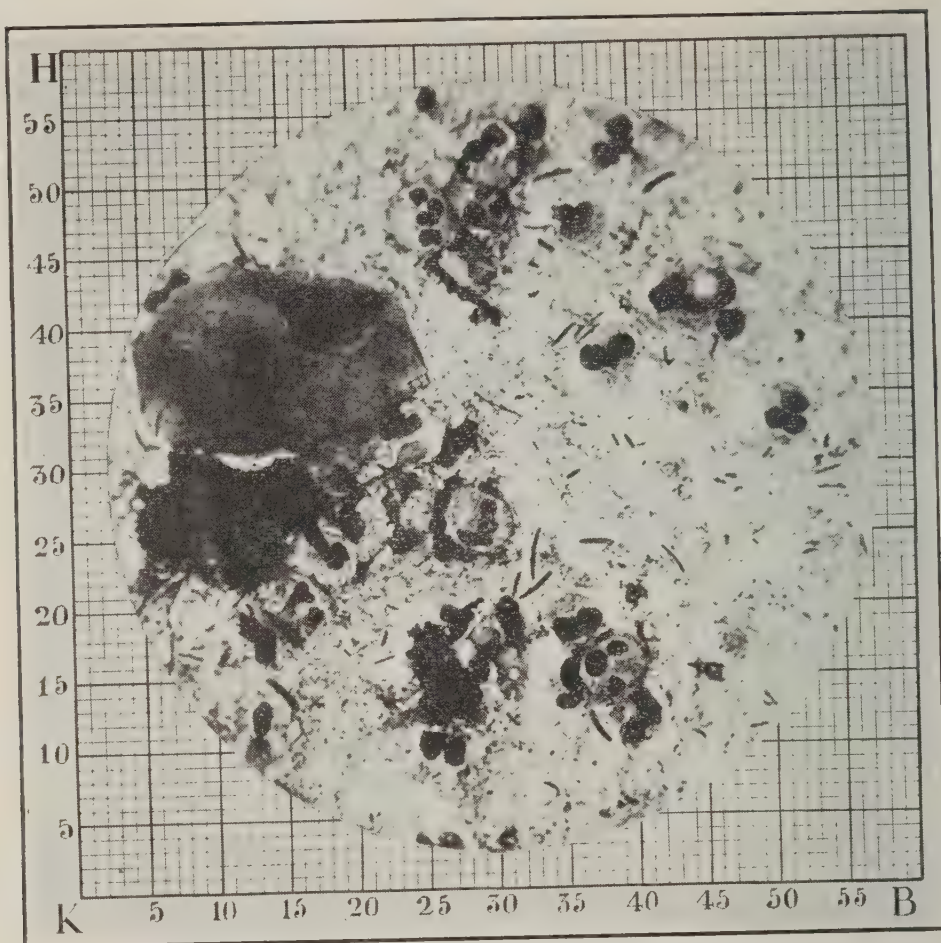


Fig. 23.

Sign No. 20.—Pus-cells in the Crevicular Exudate.

The photomicrograph in Fig. 23 exhibits another field from the same smear. Numerous pus-cells may be seen.

HK 48 KB 25

HK 25 KB 30

HK 16 KB 38

HK 37 KB 15 Epithelial cell

} Pus-cells (polymorphonuclear)

disease is present. One of the most important lessons which is to be learned from a study of Box's recent work is that inflammation and infection may exist for a long period of time without exhibiting what have been commonly considered cardinal signs. The finding of pus-cells in the exudate from the gingival crevice in any case, no matter how pink and firm the gingival tissue may be, should be the signal for quite as thorough treatment as would be accorded the case of advanced periodontal disease.

Before leaving the consideration of Box's Twenty Signs, it will be in order to call attention to the fact that in the various cases which come

under my observation, these signs will occur in various groupings. Several will appear in one mouth, different signs being found in different parts of the same mouth. Not infrequently several signs may be present on one tooth investment. This will, of course, suggest a variation in the grouping of etiologic factors.

These signs are all indications of inflammatory conditions. Inflammation, it should always be remembered, is a reaction to injury, whose tendency is repair. It is because of this fact that we see evidences of tissue loss and tissue regeneration going on side by side. The ultimate result will always depend on the severity of the injury and the ability of Nature to repair it. It is due to the variety and severity of etiologic factors, and the variations in individual resistance, that we find so many different manifestations of early periodontal disease.

In conclusion, let me once more pay tribute to Dr. Box for the immensely valuable work which he has presented to the dental profession. The history of the study of periodontal disease has been one largely of clinical observation. These early signs were not recognized for what they were until they had reached an advanced stage. Conscious treatment of periodontal lesions has been largely confined to advanced cases during the past years, the practitioner in this field thereby beginning his work under the greatest possible difficulties. As success began to be attained in greater degree in the treatment of the advanced case, so did the understanding of the nature and etiology of the disease increase. There came a time when students in this field began to follow back the advanced cases and to recognize in cases not so advanced in their development the indications as to what lay ahead. Interest has centred more and more during the last few years in the incipient signs of periodontal disease. And, now Box seems to have carried this phase of investigation to that point at which the first departure from the normal occurs. His work will simplify practice in this most important branch of dentistry, in that it makes clear not only the importance of the early lesion but its nature and etiology as well. And his conclusions as to etiology, while not yet given full expression, nevertheless, provide us with a firm foundation on which we may erect a plan for preventive treatment.

In closing permit me to say that the dentist who will devote his time or a considerable portion of it to the prevention of dental disease, must be sustained in his devotion to that work by that inner satisfaction which comes with the consciousness of work well done.

The real secret of success is to do your work better than you were expected to do it.

Signs of Incipient Periodontal Disease*

HAROLD KEITH BOX, D.D.S., PH.D., F.A.A.P.



SINCE our studies in periodontal pathology have indicated clearly the nature of the disease processes and have justified an optimistic attitude as to the possibility of elimination of these lesions through treatment, early diagnosis becomes of the first importance. It is with the thought of assisting in the early recognition of periodontal disease, that these diagnostic signs are submitted. These have been collected from the clinical experience of the author and have been verified by prominent periodontists. It is not to be inferred, however, that the order in which these diagnostic signs are presented, represents an invariable sequence in the development of periodontal lesions.

Sign No. 1. TRAUMATIC CRESCENT. A crescent-shaped zone of abnormally deep color, never extending completely across the gingival border of the tooth, and being confined as a rule to a segment about $1/6$ of the circumference of the root. It may be superimposed over a mild generalized gingivitis, but frequently occurs in an otherwise healthy gingiva. It is considered to be a sign of a localized circulatory disturbance in the pericementum, and is, as a rule, associated with traumatic occlusion.

Sign No. 2. CONGESTION OF MARGINAL GINGIVA. This zone of congestion extends completely across the gingival border of the tooth. It is regarded as a sign of generalized pericemental circulatory disturbance. It is commonly found in cases exhibiting an end-to-end occlusion.

Sign No. 3. MOBILITY NO. 1. This is a degree of mobility so slight as to escape casual observation. It requires careful manipulation and the application of considerable digital pressure, in many instances, for its detection. It seems to be associated with Rarefying Pericementitis Fibrosa, since, in this disease, varying numbers of the pericemental fibres have been replaced by this soft, yielding, new tissue.

Sign No. 4. RECESSION OF THE MARGINAL GINGIVAL LINE. Taking the amelo-cemental junction as a fixed landmark, it is often found that the gingival margin shows an altered relationship to this line. In the average case, the margin of the gingiva is approximately two millimeters above the amelo-cemental line. Recession of the gingival

* The early signs of Periodontal Disease were included in Bulletin No. 7 of the Canadian Dental Research Foundation and are reprinted here with legends added to illustrations.

margin toward this line is usually indicative of alveolar crest resorption. For example, a recession of the marginal gingiva which just exposes the amelo-cemental line will probably indicate a crest resorption of two millimeters. Exposure of the cementum will indicate an increased alveolar resorption of a corresponding degree. Figs. 1, 2, 3.

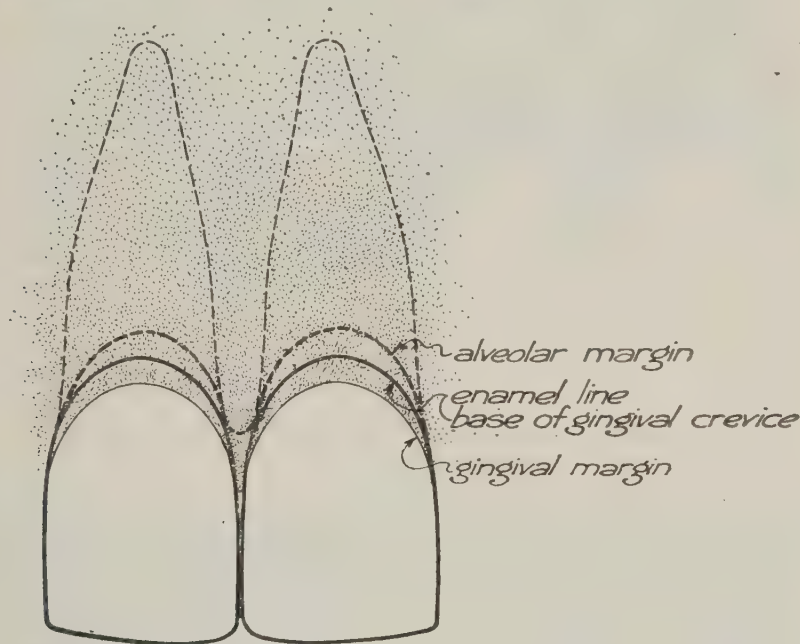


Fig. 1.

Sign No. 4—Normal Relationship. The enamel line is a fixed marking upon the surface of the tooth and constitutes a valuable guide-post in periodontal diagnosis. This diagram shows the normal relationship existing between the lines made by the gingival margin, the gingival attachment or base of the gingival crevice, the alveolar margin and this constant enamel line. The bottom line in Fig. 1 indicates the gingival margin which, in the average case, is approximately two millimeters from the enamel line. The heavier middle line denotes the enamel line and the base of the gingival crevice which, in the normal, coincide at this juncture. The top line, which is dotted, indicates the alveolar margin which in turn is approximately two millimeters towards the apex from the enamel line."

Sign No. 5. ASYMMETRIC RECESSION OF THE MARGINAL GINGIVAL LINE. In many cases recession of the gingival margin involves only part of the normal gingival line. This may occur in the median line of the tooth or on either side of this line, thus disturbing the normal symmetry of the curve of the gingival margin. It indicates a localized resorption of the alveolar crest. Figs. 4 and 5.

Sign No. 6. RECESSION OF THE ALVEOLAR CREST LINE. The crest of the alveolar process in the average normal case is approximately two millimeters below the amelo-cemental line, which has been adopted as a fixed landmark. Disturbance of the normal relationship between these lines is a manifestation of recession of the alveolar

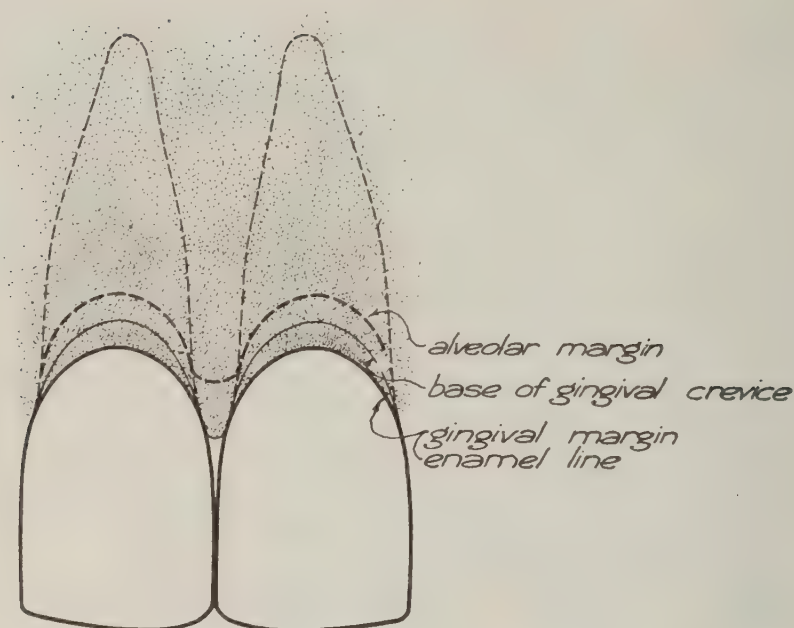


Fig. 2.

Sign No. 4—Recession of the Marginal Gingival Line. In this diagram there is shown a symmetrical recession of the marginal gingival line which here coincides with the enamel line, a recession, in the average case, of approximately two millimeters. The consequent relationship of the lines made by the gingival attachment or base of the gingival crevice, and the alveolar margin to the fixed enamel line is also shown. The bottom line in Fig. 2 indicates the enamel line, with which the marginal gingival line coincides, consequent upon a gingival recession of approximately two millimeters. The fine middle line indicates the new position of the base of the gingival crevice, and the top dotted line denotes the alveolar margin, both of which show a recession of approximately two millimeters from their original positions. There has occurred, therefore, an approximate resorption of two millimeters, of the alveolar border. This result may be inferred when the marginal gingiva has so receded as to just expose the enamel line.

crest line. This may usually be detected by careful study of the radiograph.

Sign No. 7. INCREASED RADIOLUCENCY OF THE ALVEOLAR CREST OR LAMINA DURA. This is an indication of a rarefaction of the alveolar bone in these locations.

Sign No. 8. DISTURBANCE OF NORMAL CONTOUR OF THE ALVEOLAR CREST. Frequently the alveolar crest presents in the radiograph a slightly eroded appearance, disturbing its characteristic normal symmetry. This is due to a localized resorption of the alveolar crest.

Sign No. 9. INCREASED WIDENING OF THE PERICEMENTAL SPACE. When complete rarefaction of the lamina dura takes place, there is exhibited in the radiograph, in certain zones, a definite widening of the line which represents the pericemental space.

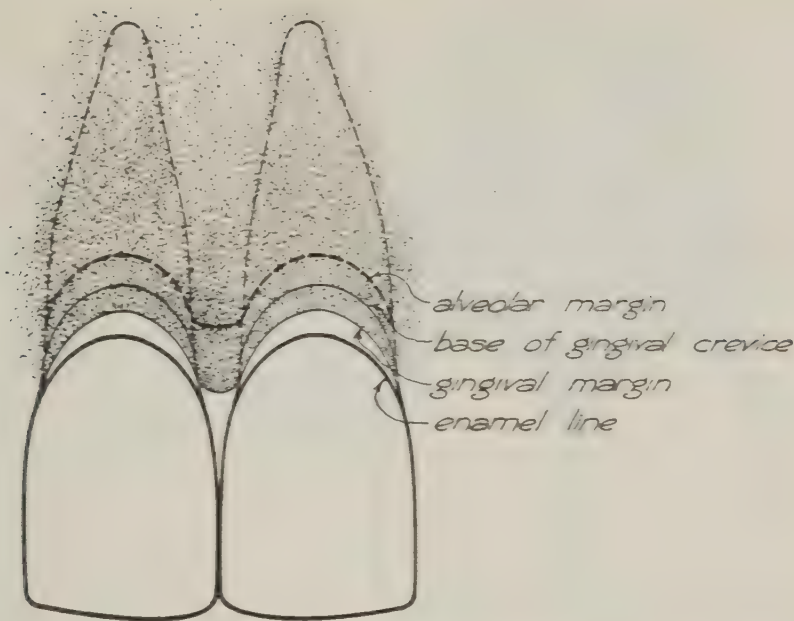


Fig. 3.

Sign No. 4—Recession of the Marginal Gingival Line. In this diagram, there is shown a more extensive symmetrical recession of the marginal gingival line. The marginal gingiva has so receded as to expose not only the enamel but part of the cementum in addition. The consequent relationship of the lines made by the gingival margin, the base of the gingival crevice and the alveolar margin to the fixed enamel line is demonstrated. In Fig. 3, the bottom line indicates the enamel line; the line above denotes the gingival margin, in this case removed approximately two millimeters from the enamel line, upon the cementum; the third line indicates the base of the gingival crevice and the top dotted line shows the alveolar margin, both of which have receded approximately four millimeters from their original positions. Exposure of the cementum, therefore, usually indicates an extensive alveolar resorption. The amount of recession of the alveolar border from its original position may be estimated approximately by taking the sum of the average depth of the gingival crevice (two millimeters) and the height of the exposed cementum.

Sign No. 10. MOBILITY No. 2. When the lamina dura is destroyed to any extent about the tooth, there is, of course, an increase in the soft tissue content between the tooth and the remaining alveolar wall. This naturally permits an increased mobility beyond the normal and beyond that designated as Mobility 1.

Sign No. 11. SHORTENING OF THE CREST OF THE SEPTAL GINGIVA. When an appreciable resorption of the septal alveolar crest has occurred, there will usually take place a concomitant dropping away of the septal gingiva. This will be evidenced clinically by the appearance of spaces between the teeth which were formerly filled with gingival tissues.

Sign No. 12. LINEAR DEPRESSIONS IN THE ALVEOLAR

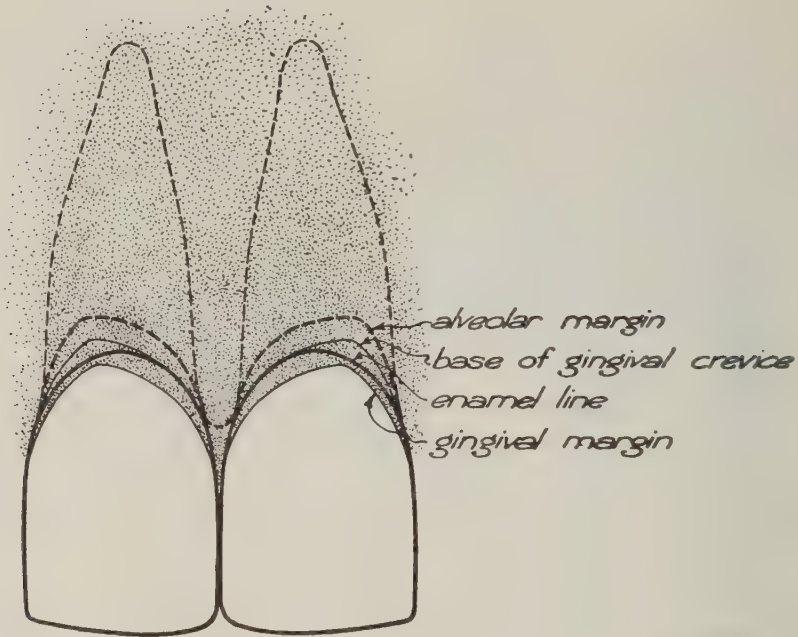


Fig. 4.

Sign No. 5—Asymmetric Recession of the Marginal Gingival Line. In the normal case, on each labial, buccal and lingual surface of the enamel, the marginal gingival line, as a rule, describes a symmetrical curve, in outline semi-circular or parabolic. This curve is parallel to the curvature of the enamel line and on these surfaces presents a concavity towards the crown. In Sign No. 4, the original symmetry of this marginal curve was not disturbed in the recession of the gingiva. In Sign No. 5, however, the symmetry of the marginal curvature is broken, and an apex is formed in the centre line of the tooth, or on either side of the line. In Fig. 4, the apex so formed is on the distal side of the centre line of each tooth. In this diagram, the consequent relationship of the lines made by the base of the gingival crevice and the alveolar margin to the enamel line, is shown. The localized resorption of the alveolar crest is plainly indicated in the top dotted line.

MUCOSA. These lines are often better shown on models than in the mouth, but may usually be demonstrated in the mouth if the light is properly directed and the mucous membrane is dried. They extend parallel to the long axis of the root and overlies the septal bone. These depression lines are to be differentiated from the normal depressions between the alveoli of adjoining teeth. These lines are characterized by being sharply drawn.

Sign No. 13. STILLMAN'S CLEFTS. These are clefts occurring in the gingival border, occasionally in the centre line of the tooth, but more commonly to one side of this line. Two clefts are frequently noted on the same tooth. Although the underlying tooth surface may not be visible, due to the apposition of the divided tissue, it is invariably possible to pass an instrument through any portion of the cleft to the tooth surface. The writer regards these clefts as essentially small

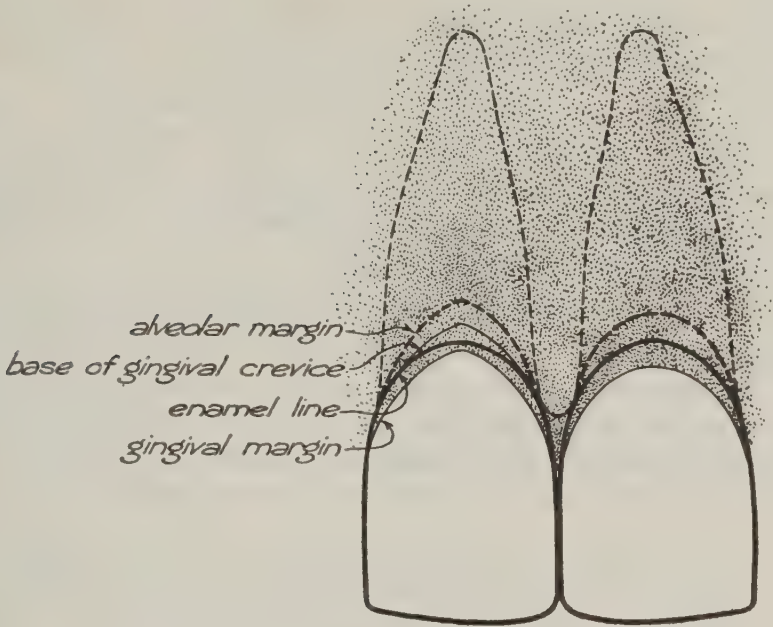


Fig. 5.

Sign No. 5—Asymmetric Recession of the Marginal Gingival Line. In this diagram, on the tooth to the left, the symmetry of the curve made by the gingival margin has been disturbed, and an apex produced in the centre line. The consequent relationship of the lines made by the base of the gingival crevice and the alveolar margin to the fixed enamel line is shown. Note the localized resorption of the alveolar border in the centre line of the tooth. The tooth to the right in the diagram exhibits the normal relationship between the lines made by the gingival margin, the enamel line, the base of the gingival crevice and the alveolar margin.

pockets in which the ulcerative process has extended through to the labial surface of the gingiva.

Sign No. 14. ABSENCE OF STIPPLING. In the normal gingiva the color is not a uniform pink, but presents a translucent stippled appearance of alternating spots of lighter and darker shade. When the normal gingiva is dried, it presents a somewhat velvety or mossy surface, indicative, apparently, of a normal circulation in the capillary loops. There is frequently observed a condition in which this mossy, stippled appearance is lost, and the surface is shiny, even when dried, and of a uniform color. The author considers this usually to be a sign of oedema in the gingiva.

Sign No. 15. FESTOONS. When, through the action of a certain grouping of etiological factors, a hyperplasia of the marginal gingiva is induced, it is frequently manifested clinically by the occurrence of a linear depression outlining the marginal gingiva. The marginal gingiva presents a characteristic uniform thickening, which, however, in the early stages, does not involve the margin itself. In the early stages, too, there

is no deviation from the normal color. McCall has called attention to the frequent relationship between these festoons and traumatic occlusion.

Sign No. 16. INJECTION OF BLOOD-VESSELS IN THE MARGINAL GINGIVA. With the aid of an ordinary magnifying glass there is to be seen, in many cases, a typical dilation of the blood-vessels in the gingival margin. This is to be considered as an indication of early infection in the marginal gingiva.

Sign No. 17. INCREASED DEPTH OF THE GINGIVAL CREVICE. The normal gingival crevice measures in the average case approximately two millimeters. Any increase in its depth beyond this point must be regarded with suspicion. It is to be regarded as a sign of early pocket formation in the cemental gingiva. This lesion is to be detected only by the use of a suitable diagnostic probe.

Sign No. 18. EPITHELIAL NODULES. There are occasionally to be seen on the surface of the gingivae small, slightly elevated nodules. They are of lighter color than the surrounding tissue, and in shape are usually round or oval. They usually indicate a period of long-standing venous congestion.

Sign No. 19. DISTENDED VEINS IN THE MUCOSA. In many cases there are to be observed dilated blood-vessels of a purplish color, arising in the septal cemental gingiva, and traceable for a considerable distance in the alveolar mucosa. They usually indicate the establishment of infection in the cemental gingiva at the base of the interproximal crevice.

Sign No. 20. PUS-CELLS IN THE CREVICULAR EXUDATE. Frequently, when clinical signs of pus are lacking, and the gingival crevice is of normal depth, a microscopic examination of the crevicular fluid will reveal the presence of pus-cells. This may safely be regarded as evidence of a suppurative gingivitis.

A SIMPLE AND RAPID METHOD OF PREPARING A MIXTURE OF ZINC OXIDE AND OIL OF CLOVES.—Pour a small quantity of oil of cloves on to a watch glass or slab and add enough oxide of zinc to make a fairly sloppy paste. This paste is then transferred by means of a spatula to a piece of cloth, in which it is squeezed just as excess of mercury is squeezed out of amalgam. This absorbs excess of oil and leaves the mixture in a "putty-like" consistency, which is just right for placing in the cavity with plastic instruments. This process saves the somewhat tedious and time-wasting spatulation, which is otherwise needed to make the mixture stiff enough.—*W. Adam Woodward.*

Organized Service for Mothers in Ontario

BY PETER BRYCE.

Chairman of Mothers' Allowances Commission.

This article was specially prepared by the author for ORAL HEALTH readers, that the Dental Profession might learn something of the very important work carried on by the Mothers' Allowances Commission.

Rev. Peter Bryce, while a student at Victoria College, voluntarily engaged in social welfare work among the less privileged classes of the community, and since graduation has continued his unselfish labors for those requiring his help. Because of his experience as a social worker and his outstanding ability as an organizer and leader, he was appointed Chairman of the Mothers' Allowances Commission by the Ontario Government.

It is hoped that, as opportunity presents, members of the Dental Profession will co-operate with the Commission, and do what they can to provide these mothers with dental service upon a basis within their very limited means.

* * *



THE Mothers' Allowances Act of Ontario came into force in October, 1920. The question of granting allowances to widowed mothers with children had been under consideration for several years.

The Act recognizes that a widow with young children cannot be a home-maker and a bread-winner as well. It is also assumed that private philanthropy failed to give adequate relief to the widow and the fatherless. It is a preventive measure of social service.

Under the provisions of the Mothers' Allowances Act, an allowance may be granted to a mother who is a widow and who has under her own care two or more children under sixteen years of age. An allowance may be granted to a mother with two or more children under sixteen years of age if her husband is an inmate of an insane asylum, or if he is totally and permanently incapacitated, or if he has not been heard of for five years or more. An allowance may also be granted to a mother with one child under sixteen years of age if she has in her care a permanently incapacitated husband, or a permanently incapacitated child over sixteen years of age. An allowance may also be granted to a foster-mother if both the father and the mother of the children are dead. The foster-mother may be a grandmother, an aunt, an older sister, or any other suitable person. Certain discretionary powers are committed to the Commission administering the Act under Section 5, Clause 3a, of the Act, where it is stated: "In cases presenting special circumstances, where investigation has shown the advisability

CAUSES OF DEPENDENCY.

1. Death of father	3,432
2. Incapacitation:	
(a) Insanity	124
(b) Other causes	380
3. Desertion	150
4. Death of both parents	112
	4,203

It has been shown that widowhood, and the needs that arise when the bread-winner is removed, are common to both city and country. The undernoted summary shows the number of beneficiaries, and the amount paid in each county, city, town, and district, and the amount paid in each municipality:

SUMMARY FOR MARCH, 1925.

Counties.	No.	Amount.		
Brant	28	\$ 875	Chatham	21 770
Bruce	48	1,500	Fort William	38 1,585
Carleton	44	1,421	Galt	28 1,095
Dufferin	11	310	Guelph	28 980
Dundas	15	525	Hamilton	184 7,195
Durham	24	805	Kingston	31 1,230
Elgin	32	1,015	Kitchener	38 1,405
Essex	55	1,825	London	97 3,855
Frontenac	22	675	Niagara Falls	13 480
Glengarry	24	815	Oshawa	21 745
Grenville	21	665	Ottawa	296 11,843
Grey	50	1,588	Owen Sound	31 1,160
Haldimand	15	495	Peterborough	44 1,767
Haliburton	11	335	Port Arthur	36 1,440
Halton	34	1,100	Sarnia	19 702
Hastings	50	1,685	Sault Ste. Marie	37 1,465
Huron	44	1,372	Stratford	27 1,007
Kent	41	1,259	St. Catharines	24 940
Lambton	25	750	St. Thomas	25 865
Lanark	39	1,140	Toronto	794 31,589
Leeds	21	590	Welland	20 810
Lennox & Addington	16	475	Windsor	38 1,390
Lincoln	27	815	Woodstock	18 755
Middlesex	47	1,530		
Norfolk	31	890	Towns.	No. Amount.
Northumberland	35	1,185	Brockville	18 \$ 692
Ontario	29	890	Gananoque	7 215
Oxford	35	1,125	Ingersoll	7 260
Peel	27	812	Prescott	3 105
Perth	21	595	Smith's Falls	13 450
Peterborough	28	927	St. Marys	6 205
Prescott	45	1,455	Trenton	8 290
Prince Edward	20	702	Walkerville	11 365
Renfrew	92	3,233		
Russell	54	1,860	Districts.	No. Amount.
Simcoe	136	4,526	Algoma	34 \$1,220
Stormont	45	1,475	Kenora	13 480
Victoria	44	1,530	Manitoulin	18 510
Waterloo	53	1,593	Muskoka	41 1,325
Welland	38	1,236	Nipissing	70 2,655
Wellington	26	732	Parry Sound	50 1,677
Wentworth	35	1,100	Rainy River	9 305
York	189	5,938	Sudbury	60 2,040
			Temiskaming	85 3,043
Cities.	No. Amount.		Thunder Bay	14 505
Belleville	27	\$1,040	Indian Reserves	16 470
Brantford	61	2,345		
			Total	4,203 \$150,636

The total cost of allowances for the fiscal year 1923-1924 was \$1,707,894. Administration costs were slightly over 4 per cent. The municipalities, apart from the judicial districts, bear 50 per cent. of the allowances and the Government pays 50 per cent. of the allowances and the whole cost of administration. The municipalities refunded last year, as their share of the cost of allowances, the sum of \$806,539.50.

The Act is in good repute throughout the Province. The municipalities pay their share of the allowances promptly. The appropriation necessary for the payment of allowances has been fully granted by the Government each year.

The social values of the Act are clearly demonstrated in reports that reach the Provincial office from time to time from the investigators and from the local boards. These social values may be summarized under four main divisions. There has been decided improvement in the standard in the homes of the widows; in the health of the widows and the children, and in better opportunities for the education of the children. Following the passing of the Act, a large number of families were reunited. If there had been no Mothers' Allowances Act in Ontario in the past four years many children would have been separated from their mothers.

IMPROVEMENT IN HOME STANDARDS SINCE THE ALLOWANCE HAS BEEN GRANTED.

The careful supervision and the encouragement given by the visitors to the mothers in the maintenance of a good standard of housekeeping continues to show a decided change for the better in many homes.

Often the allowance has actually to be administered to insure the family deriving the proper benefit from it, particularly where the mother is of low mentality, but the investigator plans always to put the responsibility of the spending of the allowance into the hands of the mother, as she shows herself able to assume it.

In one of these families, where the mother was a poor manager and financially irresponsible, the allowance was administered under very close supervision for over two years. There was shown to be a great improvement in home conditions, and the mother has gradually been allowed the control of the money, so now that she has shown that she can pay the rent regularly, keep out of debt, and buy food of good nutritive value without extravagance, she is allowed to receive her cheque direct, without administration.

The allowance has been paid into many homes for a sufficient length of time that our records can show many instances of where the mother's outlook has completely changed. From a despondent, downcast drudge, she has become a cheerful mother, who can take an interest in her

home and family, and the home and family show the result of her interest, in their greater cleanliness and neatness. The year's reports show, as usual, the good effect upon the regularity of school attendance when an allowance is granted.

The improvement in the family's standard sometimes means the complete uprooting of the home, and a new beginning in a new and better district.

The mothers usually gladly receive advice as to the proper feeding and clothing of their children, and in securing correction of physical defects, and many records show continuous improvement in the family health, and in many families the mother has, for the first time since the father's death, time to give her children the personal attention which they need. In one such case the widow, mother of two children, before her application for an allowance, worked daily in a laundry all day, and cared for her home at night. Her five-year-old boy was delicate, had ulcers on one eye, and has been five times in the hospital for this trouble. His brother, ten years old, dressed and cared for him, and took him to the kindergarten, as the mother had to go to work before he was up. Three years later this mother is working only three days each week to supplement the allowance. The delicate child shows a remarkable change since receiving his mother's own care and attention. He is growing much stronger, is never sick, and has had no trouble with his eyes for a long time.

The better chance for good citizenship that is given by the allowance is shown by the investigator in the North, when she says: "When this family was visited first, it was impossible for the mother to send the children to school for want of clothes and proper food, and this year they were the best and most regular pupils attending that school, which is about a mile and a half from their home."

The changed outlook for many children is most strikingly demonstrated in homes where the allowance has made it possible for the mother to bring her children together again after being forced to break up the home. Not only does the health of the children noticeably improve under the mother's own personal care after months, or years, of institutional life, but the children show an appreciation of their home and a willingness to work in and for it that indicates the value such home life has, and their right to it in the interest of their future citizenship.

HEALTH.

At the end of four years' experience it has been extremely gratifying to the visitors in the homes of the beneficiaries to see the improvement in the health of the mothers and their children. All the visitors speak of the change in the faces of the mothers, from whose faces the tired and worried look is disappearing. "Pinched and thin faces have filled out,

and many a mother speaks of the comfort of being able to rest when she had wondered how much longer she could stand the exhaustion that came from working all day and every day away from home and then at home, working late into the night doing the family washing, mending and cooking."

The haunting fear of sickness that would prevent the mother from keeping the home together often was the conducive factor to the very sickness she feared, and many mothers who were so overworked and discouraged that they felt they could go on no longer, now show signs of regaining their strength since the strain has been lifted.

The general health of the children has also benefited. The burden of the upkeep of the home, being wholly, or partially, lifted from the shoulders of the mother, she has had more time to spare for keeping a cleaner, more healthy and wholesome home, preparing more nourishing food and watching more closely the physical development of her children.

EDUCATION.

The Mothers' Allowances Act has made possible a more liberal education for many children. Children who would ordinarily have been taken from school at the age of fourteen years remain now until sixteen years of age. One mother stated that her older children had been obliged to leave school early, but the younger ones would now have the opportunity denied to the other ones.

The Mothers' Allowances Commission insists also upon regularity of attendance at school, and school reports are reviewed by the investigators upon their periodical visits to the homes of the beneficiaries. Again and again the teachers in the school have remarked upon the improvement in the regularity and the punctuality on the part of children of beneficiaries and upon their improved appearance, due to better clothing and better food.

Families living away from a school have been moved to a locality near a school. In one case, two children, fourteen years and ten years of age, had not gone to school until the change of residence was affected. In another case we found a girl of fourteen years who had never been to school. The mother became a beneficiary under the Act, and immediately this child was sent to school, and made such good progress that one and a half years later she entered the second book.

REUNITED FAMILIES.

The most important effect of the Mothers' Allowances Act is that of keeping homes together and making it possible for mothers who have been forced to separate their families to bring them together again. On

all sides mothers have said that, but for the allowance, they would have been forced to part with their children.

In one district alone, during the first year, the visitor reports seventeen families brought together, the children having formerly been distributed amongst relatives or placed in institutions. In the same district five families on the verge of separation found it possible to keep the home together on their earnings when supplemented by an allowance, where the personal effort of the mothers alone would have been insufficient to prevent separation.

In another district, four homes in one part of the country were about to be broken up by a child-placing agency, there seeming to be no other way of providing for these children. A mothers' allowance was granted in all these cases, and the homes were kept together, and are showing marked improvement in cleanliness and in the standard of living.

The effect is as beneficial upon the mothers as upon the children. As one mother said to the visitor, she needed the children as badly as they needed her; that when her children were taken away from her she seemed to have no anchorage and, relieved of responsibility, she was in danger of drifting. Some of the happiest consequences of the allowances are among these reunited families.

A mother, after struggling for eight years to support herself and two very young children, finally collapsed, and, on the investigation of her application for an allowance, she was found in an hospital physically and nervously exhausted. The children were in an orphanage. In all these years she had not had a home, working almost altogether in the country, or in small towns, as she found it easier there to keep her children with her. The prospect of being granted an allowance lifted a load of anxiety and hastened her recovery. The investigator interested friends in the donating of furniture and furnishings for the starting of a little home. The mother is now very happily settled in a little flat, and has steady work three days a week as auxiliary nurse in one of the hospitals, and the happiness of the children in their homelike surroundings is touching to see.

In another family the husband was incapacitated from supporting the family by tuberculosis of the lungs in an advanced stage, and he was obliged to go to a sanatorium. There were five children, the youngest only a few months old. The husband and wife came from Russian Poland about ten years ago. When the application for an allowance was made the mother was boarding in the home of another Polish family and working daily in a factory. She had found it impossible to maintain the family on her own earnings, and the children had been placed in an orphanage. She kept repeating to the investigator: "Oh, I am sorry for my baby." When the possibilities of an allowance were explained to her, with pathetic impatience she began searching for a

little home of her own. After several unsuccessful attempts she found a little frame house at a low rental, very simple, but roomy. She saw the possibilities of it, however, and soon had the walls tinted and her little stock of furniture in place, and brought home five happy children from the orphanage. The investigator said it would be hard to find a happier scene than that family reunion.

A grateful mother, who was enabled to get her children out of an institution and move from the city, where she had been working, to a small town, wrote to the Commission: "I feel that I must write you a note to thank you most sincerely for all the kindness you have shown to me in getting me the pension. It is, indeed, a great blessing to have my little boys with me after being separated for nearly four years, and only God knows how grateful I am for it. Little Jack, who was so sick at the Home, is getting along splendidly. The air here seems so pure and lovely after being so confined."

The Commission has been deeply impressed with the remarkable co-operation of public bodies in the assistance granted to the widows and the fatherless of the province. Rotary Clubs, Kiwanis and Lions' Clubs, and various other service clubs, as occasion arises, assist the widows' families in various ways. Some clubs provide a Big Brother for the older boys of the widows; other clubs provide the means for special medical assistance. Members of the medical and of the dental profession have been most kind in providing necessary medical and dental care for beneficiaries under the Act.

The Mothers' Allowances Act, as an experiment in child welfare, is an undoubted success, if judged by the results already attained.

The End of the Dark Ages

“ LAY down my pen with the deep conviction that the final results of this great convulsion are meant to be spiritual rather than material and that upon an enlightened recognition of this depends the future history of mankind. Not to change rival frontiers but to mold the hearts and spirits of men—there lies the explanation and the justification of all that we have endured. The system which left seven million dead upon the fields of Europe must be rotten to the core. Time will elapse before the true message is mastered, but when that day arrives the war of 1914 may be regarded as the end of the dark ages and the start of that upward path which leads away from personal or national selfishness towards the City Beautiful upon the distant hills.”—ARTHUR CONAN DOYLE.

Partial Dentures

POLK E. AKERS, D.D.S., *Chicago.*



IN the consideration of the problem of the restoration of missing teeth in partial cases, I believe the following to be the paramount requirements:

1. That the appliance will not occasion needless impairment of the abutment teeth, either for the purpose of its construction or in its subsequent results in the mouth of the patient.
2. That it may be worn by the patient with comfort and safety.
3. That it may be satisfactory from a cosmetic and esthetic standpoint.
4. That, with average care upon the part of the patient, it will deliver a maximum of service—which implies that it must be so constructed that it will be easy to keep clean.
5. That, from an economic standpoint, it can be utilized by the person of average means.

It seems to me that this subject should be of more than passing interest to the dental profession, for the reason that present-day dentistry creates so many situations where its employment is indicated and where no other known method could properly be considered by any one who has the faintest regard for the conservation of the abutment teeth.

I will not, in this paper, attempt to review the history and evolution of cast clasp restorations. It is a far cry from its early, somewhat crude inception—with the inevitably high percentage of failures incident to pioneer work in any endeavor—down to the present-day technique. Suffice it to say that the profession, as well as the public, is under a deep obligation to these early pioneers, as their efforts have paved the way for what has been developed to-day.

Nevertheless had this early situation remained stationary—had no progress been made to correct the faults and limitations of these early designs and technique, I venture to say that few would contradict the statement that most cast-clasp work would to-day be but an unpleasant memory. We have all, I am sure, experienced that peculiar sinking sensation upon seeing some of our early cast-clasp work a year or more subsequent to its installation—the abutment teeth in many cases etched and discolored and the proximal surfaces near the gingival ravaged by decay. I am free to say that I have had this experience a number of times and I have devoted the major part of the past seven or eight years to research and experimental work to correct these defects. I believe I can claim a fair measure of success for these efforts.

* Clinic given before Montreal Dental Club, March 9-10, 1925.

It is not claimed for this work that it is a panacea for all partial denture requirements, nor that there is not a place in dentistry for fixed bridge work. Indeed there are many cases where fixed bridge work, properly constructed, is indispensable.

However, I have no hesitancy in saying that in the large majority of cases the cast clasp (one piece casting) type of restoration can be employed to the mutual satisfaction of the patient and the dentist. Common sense should govern the dentist in his decision as to when fixed or removable work is indicated.

The principal points I wish to bring out in relation to my design and technique, as compared with the early method, are briefly as follows:

1. Entire case cast in one piece, directly to model, thus eliminating the likelihood of the various component parts getting out of relation. This does away with not only a succession of impressions, but also avoids a number of soldering operations which subject the case to the possibility of being pulled out of relation. I cannot emphasize too highly the importance of this point.

2. The relief of the impression to restore proper interproximal space and avoid impingement upon vulnerable parts of teeth.

3. The provision for occlusal stops for every clasp.

4. The narrow, highly polished on the inside, half-oval clasp covering a minimum of tooth.

PRELIMINARY PREPARATION OF THE ABUTMENT TEETH.

1. Polish well all teeth to be clasped.

2. Inspect carefully abutment teeth for most convenient place for occlusal rest. If no natural depression is present, make one, as a counter sunk space for occlusal rest is indispensable. $1/32''$ in depth is sufficient.

IMPRESSIONS.

1. Use only ordinary impression trays (not split trays) sufficiently deep.

2. Take impression in solvite impression material mixed thin with cold water and well spatulated.

3. Add salt to hasten setting.

4. Oil tray slightly to facilitate removal of tray from impression whilst in the mouth.

5. Be sure to seat tray well down towards occlusal surface of teeth, as this aids in breaking out impression material.

6. Remove tray from impression.

7. It is generally better to start breaking out impression by inserting the index finger over buccal portion near the posterior border.

ASSEMBLING IMPRESSION.

1. See that tray is free from any small particles which would interfere with replacing parts in their relation.
2. Place parts back in tray, and be sure that they are seated back in tray, and seal to tray with base plate or bite wax (not sticky wax).
3. When impression has been completely assembled in tray, if any slight cracks are present, do not at this time flow in wax, but trim off from model later.

PREPARATION OF IMPRESSION.

This is an all important step in this work. Trim out in the impression any undercuts that may exist adjacent to the abutment teeth. This is imperative, for the reason that it permits the case to go to place and restores the normal interproximal space.

This point probably needs elaborating. As I said before, it is all important. By trimming out all undercuts, I mean to trim from the gum line to contact point adjacent to every tooth to be clasped. This will allow the case to go to place, and will restore a natural interproximal space. Be sure this is understood before going further.

1. Paint impression with solvite separating fluid *while slightly damp*, using two coats if thin and one if thick. If case is absolutely dry, place in bowl of water, momentarily, and then paint. Dab cusps with brush to prevent too much settling there.

2. Allow about five minutes to dry and then place in water whilst mixing your loheet investment No. 1.

3. Run model with loheet No. 1. Use cold water, mix fairly *thick*, and after spatulating for a minute place a lid over rubber bowl and shake well to a fairly thick mixture. This dispels air bubbles and gives a uniform mixture. If this is properly done you will obtain an exceedingly hard, smooth model.

4. Trim model moderately (giving final trim after separation) and leave to set for one hour.

5. Place model and impression in pan of *cold* water and bring to boil with low flame. Impression will dissolve and separator can be peeled off.

6. Whilst model is wet draw design with indelible pencil. Relieve model if any teeth are to be butted.

7. Leave model until perfectly dry (say 24 hours) and place in oven at low heat for a short time, otherwise wax will not adhere to model.

DESIGNING.

1. Make cases as little complicated as possible.
2. *Clasps*, if kept narrow, practically become self-cleansing. They must run just below the line of the bell of the tooth. This does not necessarily mean horizontally, as this line is not always horizontal. Examine model from all angles for making line of bell of tooth with pencil.
3. Do not forget that a clasp can be opened or closed with pliers if necessary to strengthen or loosen the hold on a tooth. Don't make more clasps than necessary for retention. On the other hand, if unable to obtain sufficient clasp hold for a case, carry on extension to another tooth and to this attach a clasp. In the case of a double or treble clasp the clasps should taper off in width as they approach embrasial hook, as this adds to the appearance. Use all means to get *spring* in clasps, keep them narrow in width and somewhat delicate *beyond the axial angles*, have narrow saddle attachment, and when building lingual bar cases build bar to meet saddles and not clasps. Clasps must be as free as possible to get necessary spring.
4. To prevent pressure on tissues and also straining bridge, always place a "rest" on either side of a bridge. This applies to single anterior teeth in partial cases where it might be overlooked. When a rest cannot be fitted on one side of a bridge, carry an extension to a tooth further distant and to this attach a rest.
5. Palatal bars give greater feeling of security than horse-shoe cases, but there are times when palatal bars cannot be used.
6. In the case of an upper with one abutment, a mean cuspid, use a palatal bar.
7. When all teeth missing in upper except 2nd molars, horse-shoe case is indicated. Spring from side to side will aid retention.
8. For lower unilaterals use an embrasial hook.
9. Keep vulcanite attachment saddle to lingual. For these use 22 gauge wax.

WAXING.

(For All Gold Lingual Bar Case With Tube Teeth.)

1. Before waxing up see that model is perfectly dry.
2. Warm model slightly over bunsen.
3. Use for clasps 30 gauge wax.
Saddles 22 gauge.
Bars 22 gauge—two thicknesses.
4. Grind tube teeth to fit case, but first decide as to whether they are to be butted.
Then cone-shape root end of teeth with porcelain finishing disk.
When ground see that teeth lie 1-1½ mm. below line of occlusion to allow for cementing.

5. Place wax for clasps (make slightly wider than sketched and reinforce axial angles to occlusal rests if necessary), then saddles, then bar and wax together.

Cut a strip of wax from saddle, i.e., part to which wax pins are to adhere.

With wooden tooth-pick glycerine over teeth and within the pin holes.

Thread wax post (made by hypodermic syringe) or roll a wax pin through pin hole of tooth and form excess into a lump on under surface. Heat this over bunsen and press on model in correct position, leave there and repeat with next tooth, shape with hot spatula when all the teeth are in place.

6. Fill in between teeth and between teeth abutments with wax, smooth over saddle, adding wax on hot spatula if necessary.

Do not overbox teeth.

7. Place waxed model under cold water, remove and then carve with a sharp knife. Withdraw all teeth and replace. This is best done by holding the model with one hand and resting on the bench and withdrawing with the other hand resting on the bench (for steadiness to prevent displacing posts.)

8. Finish with hypodermic needle. I use Heidbrink waxing torch, and then wipe over with China silk. Do not forget that it takes less time to work wax than gold and that less gold is wasted when finishing.

SPRUEING.

1. In nearly all cases use only one sprue, made out of b.p. wax. If, however, using only one sprue, gold has to "come back" safer to give "leads" to these points.

2. Make it amply large if centrifugal casting machine is used. It may be as large as a slate pencil.

3. Attach it firmly to that part of the wax on model which will give the molten gold the best opportunity for a direct flow. In lingual or palatal bars cut away model, making a hole through to bar.

INVESTING.

1. Select a suitable sized ring for model. Larger than necessary only wastes investment.

2. Soak model in water until bubbling ceases.

3. Paint entire model and wax pattern (using thin mix of sheet No. 1) to at least $\frac{1}{8}$ " thickness and get well around attachment of sprue. Don't rush this process, and use two mixes if necessary. Careful painting like careful waxing pays in the long run.

4. Rest edges of painted model on glass tumbler and let set for at least 15 minutes.

5. Mix No. 2 to a creamy consistency, dip painted model in this bowl, then fill ring $\frac{3}{4}$ full and wriggle model into this.

6. Then fill ring (if necessary) to slightly above rim and allow to set (say 45 minutes).

7. Cut cone-shaped opening around wax sprue to give gold ample access and act as receptacle for excess when casting.

8. If any paper on bottom of ring remove, as this would to a certain extent prevent free escape of moisture when drying in oven. Also would hide blue color of investment, which indicates that it has not been overheated.

DRYING OUT.

After investment sets, so that it will break with a snap, usually about thirty minutes, put on radial burner *with sprue hole down* and turn gas on full. This will burn out wax and free water. This will take from two to four minutes for inlays to about ten to fifteen minutes for a large case. Watch closely, and as soon as the investment in ring dries over the top, place in oven that has been heated to 300 degrees, and leave for $1\frac{1}{2}$ hours for inlays to five hours for large cases.

In maintaining a heat of 300 to 350 degrees, time will not harm them. In fact I leave a lot of my cases in the oven over night and cast in the morning. Before casting, however, be sure all moisture is out by placing mirror over sprue hole to see if any moisture accumulates on mirror. Should there be any doubt about wax being present, a test can be made by holding blowpipe flame over sprue hole. If any wax is present a hardly perceptible flame will be noticed on removing blowpipe.

NOTE: In case you are going to cast to Steele's backings or other attachments, it is advisable to run heat of oven up to about 500 degrees, and leave for 10 to 15 minutes before casting.

Rounding and balling of edges of casting due to moisture.

No. 2 investment is of a greenish color. If this color is burnt out the investment has been overheated.

4. Just before casting run heat up to 400 degrees for half an hour. (For large cases).

CASTING.

(This Technique Is For Centrifugal Machines.)

1. Place ring on machine and balance.

2. Place fresh asbestos foil in crucible. This is important, as it helps to retain the heat. Take another piece and double it, cut a hole in center and place between sprue hole of ring and inner front ring support. This makes a good seal, preventing throwing of gold out from between ring and attachment.

3. Heat crucible before putting in gold.

4. Use brush flame first to melt gold, then blue flame. Use no borax, reducing flux much better. Use good blowpipe and play with flame to find correct distance for most heat. Cast when gold gets smooth on top.

FINISHING.

1. Cut off sprue with separating disk or mechanical saw.
2. First prepare the clasps:
Using $\frac{7}{8}$ " heatless stones and separating disks.
 - a. Get all length possible by trimming shoulder, this to obtain necessary spring.
 - b. Remove all undercut from gingival side where there will be no spring.
 - c. Then stone occlusal side of clasp, making approximate required width.
 - d. Make oval but leave plenty (especially at axial angles) for polishing, outside as well as inside. If not made too weak clasps can always be bent to obtain higher grip if necessary.

Now finish inside of clasps.

USE:

- a. Gold finishing burs or hub-shaped stones.
 - b. Sand paper disks.
 - c. Felt wheel or piece of cotton wrapped around fissure bur with tripoli on it.
 - d. Above again, and sureshine.
 - e. Burlew disk.
- If necessary to further trim use porcelain finishing disks.
3. Buff with rag wheels ($3\frac{1}{2}$ ") and sureshine.
 4. Boil in Gold Dust powder and dab with brush.

TECHNIQUE OF CASTING TO BACKING.

Steele's Facings.

1. Grind teeth without their backings to fit case (for temporarily holding tooth on model when fitting use a bit of soft wax).
2. Then put on gold backing (alloy backing should not be used), and trim with scissors. Then stone for close fit.
3. Criss-cross gold backing with separating disk to give suitable surface for attachment for casting gold. Another method is to put a spot of 18 kt. gold solder on backing and then hold over bunsen flame. This will act as a medium of attachment.
4. Remove soft wax, place tooth in correct position and then flow a little melted casting wax behind it. Remove facing, moisten with saliva, replace and then reinforce further with melted casting wax. See that the wax fills all interstices and place a little extra along incisal edge.

5. Be careful not to run the sprue too near the tips of the backings, or the heat of the molten gold may melt them. I have seen this occur.

6. Steele facings indicated for close or harsh bite. Also in single anteriors in a partial case when there are clasps or rests or both on either side.

Recreation



VISCOUNT GREY OF FALLODON, K.G., in "Recreation," describes in a most interesting way the visit of the late President Roosevelt to England upon a "holiday jaunt, arranged during the spring-time, when the birds would be in full song, so that he could hear them," and proceeds:

"If we can find recreation in such things as these, then, indeed, we may make the joy of life great, as well as the duty of life, and we may find that the joy of life and the duty of life are not things adverse, or even to be contrasted, but may be, as Colonel Roosevelt puts them, companions and complements of each other."

In describing the present age, Viscount Grey says that it is sometimes spoken of as a pleasure-seeking age, and continues:

"Whether it be a pleasure-seeking age or not, I doubt whether it is a pleasure-finding age. We are supposed to have great advantages in many ways over our predecessors. There is, on the whole, less poverty and more wealth. There are supposed to be more opportunities for enjoyment; there are moving pictures, motor cars, and many other things which are now considered means of enjoyment and which our ancestors did not possess, but I do not judge, from what I read in the newspapers, that there is more content. Indeed, we seem to be living in an age of discontent. It seems to be rather on the increase than otherwise, and is a subject of general complaint. If so, it is worth while considering what it is that makes people happy, what they can do to make themselves happy, and it is from that point of view that I wish to speak on recreation.

"Let it be admitted that recreation is only one of the things that makes for happiness in life. I do not even recommend it as the most important. There are at least four other things which are more or less under our own control, and which are essential to happiness. The first is some moral standard by which to guide our actions. The second is some satisfactory home life, in the form of good relations with family or friends. The third is some form of work which justifies our existence to our own country and makes us good citizens. The fourth thing is some degree of leisure and the use of it in some way that makes us happy. To succeed in making a good use of our leisure will not compensate for failure in any one of the other three things to which I have

referred, but a reasonable amount of leisure and a good use of it is an important contribution to a happy life. How is this happy use of leisure to be ensured? We sometimes meet people who do not seem to know what to do with their spare time. They are like the man of whom it was said, 'He doesn't know what he wants, and he won't be happy till he gets it.' The first thing, therefore, is to take ourselves out of that category, to know definitely what we want, and make sure it is something that will make us happy when we get it; and that is the beginning of recreation. You are entitled to say to me, 'That is all very well as a general piece of advice, but tell us how you have followed and applied it yourself'; and it would not be fair for me to shrink from answering that question. In one respect, I must plead failure. I have been a failure as regards golf, not because I did not succeed, but because I did not want to succeed. I have a great respect for golf. I am sure it is very good for many people; I know very many good people who play golf; but it so happens that it does not give me a good time, and so I leave the recommendation of it to people who can speak of it with more appreciation.

"But I do recommend some game, or games, as a part of recreation. As long as I could see to play and had sufficient leisure, I enjoyed immensely the game of real, or court, tennis, a very ancient game, requiring activity, as well as skill, a game in which Americans may take interest and some pride, because, for the first time, at any rate, in the recent history of the game, an amateur is champion of the world, and that amateur is an American. The English are sometimes criticized for paying too much attention to games. A British officer whom I know well, who happened to be in Africa at the outbreak of the war and took part in the fighting there, tells me that in one of the German posts captured by the British there was found a map made by the Germans and showing Africa as it was to be when the war was over. The greater part of Africa had become German, and there was nothing left for the British excepting a small patch in the middle of the Sahara Desert, which was marked 'Footballplatz for the English.' Football is a national game in America, as well as in England, but I do not suppose that either you or we think that our soldiers fought any worse in the war for having been fond of football. I put games definitely as a desirable part of recreation, and I would say, have one or more games of which you are fond, but let them, at any rate in youth, be games which test the wind, the staying power, and the activity of the whole body, as well as skill."

The author also refers to sport, gardening and books—especially of poetry and philosophy. Viscount Grey refers to the main source of literary recreation in reading as "the great books of all time, on which one generation after another has set the seal of excellence."

Root Canal Surgery*

BY L. T. CANFIELD, D.D.S., TOLEDO, OHIO.



IN presenting this paper to you to-day I do so at the request of your president and my old friend Dr. Dyball. I shall not hope to bring to you the last word on this subject, rather shall I wish to give you, in my meagre way, the results of forty-five years' experience in dentistry, the past twenty-three or twenty-four of which I have given up to experimentation and research in the problem of pulpless teeth.

It is a well known fact (especially among us older ones) that our profession has been one of extremes that have run in cycles. The past few years of one such cycle has been the wholesale extraction of pulpless teeth. The pendulum has swung hard over, but I am pleased to believe has righted itself and is now ticking off a safer, saner procedure to health.

There is no doubt that the hysteria has produced some good results. The dental profession has come to realize that it can no longer straddle the real situation and can no longer run away from this problem. We best can repay the sacrifices which have been made by improving our technique and methods to the extent of saving instead of sacrificing these teeth. Teeth were put in our mouth for a purpose and if they are worth anything they are worth fighting for. We need a rebirth of faith in our ability to save teeth. We have been dangerously near to a "what's the use" attitude. We have always been a profession of progress, conservation, restoration, not destruction. Are we now to lay down the hammer and say we are failures?

For the past few years we have been prone to move in ruts, disregarding science and advancement, and have gone back to the days when the only remedy known was destruction—"extraction". It has looked as though we were mistaking confusion for progress. I am here to fight for the conservation of teeth for humanity and future posterity. I am fighting for the teeth God gave us to masticate our food, which is the essence of life itself. We apprehend, or should apprehend, the function of every individual mouth; we realize, or should realize, our obligation to our patients and the public for their future safety. We recognize, or should recognize, our duty to preserve the health of our patients, and thus in all these ways maintain not only the highest standard of our honorable profession, but conserve for future generations the priceless heritage—health. Your diploma has not forever

* Read before the Corydon Palmer Dental Society, October, 1924.

made progress impossible. Your "D.D.S." should not permanently seal you so that progress cannot get in.

What are we going to do without the good old family dentist? I sometimes think we have specialized to the detriment of the profession. Our brother exodontists and prosthodontists have marketed their propaganda over long. We can't all be butchers and bakers, some of us must be savers. This propaganda has been advertised and talked among the laymen until they think every ill may be eradicated and they may become young again if they only have their teeth all extracted. I beg to quote from a paper of mine, published in the Dental Summary, September, 1923:

"The desire of all men and women of all ages is youth—the Fountain of Youth; like Ferdinand De Soto, they are looking for the panacea for fleeting years, hoping to bring back the days of life's springtime by the skill of the surgeon; but we have not yet discovered the mystery of life. Let us remember that it is with Nature that we must deal, and that Nature is the court of last resort."

It would seem that some of our brother M.D.'s think that to be interesting they must say something startling regardless of the known truth of the matter. It would seem that every one ought to know the truth of the matter. It would seem that every one ought to have at least one pulpless tooth or gold crown if for no other purpose than to aid the physician in his diagnosis; a defensible artifice for him; but some of our extremists are getting their pulse down to normal and the dead-line of focal infection is being overcome.

No one who does his work well has to bother trying to get "business". Those who do not do their work well, create a natural monopoly for him. The man who does not go forward seldom has any one but himself to blame.

We should try to raise our standard every day. When we get to covering up our bad work by destroying (extracting) good serviceable teeth, then we shall be in danger; it is our business to serve, not to exploit. We should do nothing for our patients that we would not have done to ourselves.

With all our seeming progress we have stood still and even stepped backward in the most important science of our profession—the art of saving teeth. We have shunned this important duty and relegated it to the scrap-pile. It is remarkable that people have lived so long considering all the ills for which their teeth are to blame; but I am convinced that a change has come, and that the extremists are coming back into the fold, both medical and dental, and by consultation are becoming more conservative and getting nearer to real facts, realizing that clinical conditions change, fluctuate and alternate, and only time can distinguish transitory from permanent. Life is a co-ordination of sev-

eral factors, each closely related to the other, and each dependent upon the other. To-day we may be stubbornly fighting against things which will be accepted by our brothers in the future.

It seems difficult to question an established practice, upset a precedent and investigate the basis for its existence, but the time has come when we must question these practices; uphold the dignity of our profession and come back into the fold as Doctors—savers of teeth; then we will not be called “tooth carpenters”.

I do not wish you to think me prejudiced, though it would be no wonder if you called me a hobbyist, as I have given the past twenty years of my life to this subject, the past fifteen to root-canal work exclusively. Over twenty years ago I was convinced that the loss of many pulpless teeth was from over-treatment and over medication; it was then I began my research work and experimentation for a proper formula, changing, modifying and watching results under actual practice. For the past fifteen years I have used but one formula and one standardized technique.

That I am not alone in my conclusions and decisions I would ask you to read the following articles in recent publications in our leading journals by representative men as follows:

“Rational Treatment of Pulpless Teeth,” by Elias Lieban, D.D.S., New York; Dental Digest, January, 1924.

“The Surgical Route in Conserving Pulpless Teeth,” by Bertram B. Machant, D.D.S., Brooklyn, N.Y., Dental Cosmos, February, 1924.

“Iodoform as a Component of Root Canal Fillings,” by Dr. Jules J. Sarrazin, New Orleans, Items of Interest, January, 1924.

“Iodoform in Root Canal Work,” by Ernest Strurige, D.D.S., London, England, Items of Interest, January, 1924.

“Root Canal Problems,” by H. D. Grubb, D.D.S., Cleveland, Ohio, Dental Summary, May, 1924.

I refer to these men because their findings and conclusions are in exact accord with that which I have adopted and practised for many years.

One may see that to save diseased teeth is not the very difficult problem that has been heralded the country over by our extremists. The work can be done by the average operator if he thinks and acts in a surgical way. Please do not understand me that I believe all diseased teeth can be saved, or that we should try to save all diseased teeth regardless of conditions. One should check up age of patient, history, resistance, etc., taking into consideration necessity of retention for abutments in future restorations and esthetic conditions, after which if we believe such teeth by proper surgical treatment can be made aseptic and can be kept aseptic (and I believe a large percentage can be) then

they should be retained in the mouth; the operation should be done surgically and bacteriologically and at not more than two sittings, mechanically removing all foreign and pathologic substances by curettage, files, picks and broaches. Do not be afraid to sacrifice tooth substance for perfect access, chemically by the free use of sulphuric acid and bicarbonate of soda. If the tooth has been made sterile there is nothing to produce further infection. Nothing can be gained by endless and repeated treatment. When the tooth and canal have been made aseptic, the final filling of the canal should be done at once.

It is my purpose now to speak of drugs and medication which I use in the final sealing of the canal. After many years of experimentation, closely watching and checking results, with many different drugs and many changes of the same formulas, due to much annoyance from post-operative pain, soreness, swelling, etc., I produced a perfectly-balanced formula, overcoming these objections, and which I believe perfectly sterilizes the dentin and tubuli remaining forever and always active. Many teeth have been sacrificed and much systemic harm done by over-indulgence in medication and over-treatment.

Much has been said and written about and against formaldehyde, and justly so; but it was not the fault of the drug, it was its misuse. I am a great believer in its use provided it is properly used in proper form and properly balanced with the other drugs for the treatment of diseased pulpless teeth. It is used in my formula in very small quantities in the form of trioxymethylene, as a dry white powder, which is a polymeric form of formaldehyde, which under the normal heat of the body generates true formaldehyde gas and destroys bacteria.

The next and a very important ingredient in this dressing is iodoform, which forms about seventy per cent. of the formula. Iodoform is soluble in ether, chloroform, alcohol, volatile oils, carbon disulphid and fixed oils, volatilizing under heat, and when combined with the essential oils and trioxymethylene, in the formula, by means of body temperature, generates and continually throws off pure iodine, becoming an active antiseptic. It is unnecessary to emphasize the value of iodoform in practical medicine and surgical wounds, by specific influence on cell growth to encourage healing. Its absorbing of secretions makes an unfavorable soil for bacterial growth.

The third and fourth ingredients in the formula are beechwood creosote and Ceylon oil of cinnamon. It is unnecessary for me to dwell upon the medicinal qualities of these two drugs, as you are no doubt familiar with their action. However, the volatilizing of these essential oils with the hot air syringe, compelling the iodine to be thrown off and diffused into the remote foramen and tubuli, has an inhibitory effect on bacterial growth.

This formula should be carefully compounded and properly bal-

anced; the powders thoroughly mixed in one container and the liquids in another. A few drops of the liquid are placed on a glass slab and the powder sifted in until you have a thin, creamy paste, which can be thoroughly pumped into the canals.

I believe that every man who has given any thought and study to the subject is convinced that gutta-percha is the only substance with which to properly fill root canals; but, before it is fit for use it should be perfectly sterile and contain properties which will keep it sterile. Therefore, I produced a gutta-percha point of which every molecule of the percha is thoroughly incorporated with the above drugs, which slowly diffuse pure iodine into the tubuli, destroying bacteria, rendering tissue immune, eliminating infection and assisting nature in building normal living tissue.

Gutta-percha becomes plastic and is capable, under a small amount of heat, of being packed into canals of any shape or form. It is insoluble to body fluids, non-irritant, non-shrinkable and radiopaque, making it valuable for radiographic evidence. The gutta-percha point can be thoroughly packed into the canal under a little heat with a cold instrument. It should have no metallic centre to interfere in its being packed and shaped to place. Moreover the wire is very apt to be forced through the foramen, causing very serious results.

The filling of root canals can readily be accomplished by the average operator, provided he is thorough and maintains surgical and bacteriologic asepsis, without tedious methods or a costly equipment of instruments.

I hear some one say, "I cannot command a fee to compensate me for the time I must spend." This might be true by the old ways and methods; but we are in a new cycle. It is easy to get a proper fee if we put the matter up to the patient in the right way, namely: "*This tooth needs surgical attention and careful treatment if it is to be retained.*" Never say, "This nerve has to be killed."

What have our exodontist brothers done in this line? They charge from \$20.00 to \$35.00 for one tooth; many of us have extracted bushels of them for fifty cents each. A short time ago a lady said to me, "I never would have a tooth extracted; I would have it surgically removed." There is something in the way we put it! Are we not entitled to a fee for saving teeth as well as they are for removing them?

I believe whatever success I have obtained in the treatment of root canals is due to the strict obedience to the principles I have adopted, and in all my relations with this work I have tried to render a genuine service to the profession as well as to human kind.

If a better way than I have suggested be found, then that better way ought to be adopted.

SUMMARY OF TECHNIQUE.

First Sitting: After complete diagnosis and decision to operate, spray or wash out the mouth with tepid water, open cavity, remove all diseased substance that can be removed without pain to the patient, reaching pulp chamber if possible, but not going into the canal. Syringe thoroughly and wipe out moisture with cotton. Have ready small pledget of cotton saturated with Buckley's formo-cresol, which place in cavity covering pulp. Seal this in with gutta-percha, soft and well warmed, without pressure. This is for pre-operative sterilization. This should be left in for twenty-four hours, and not more than forty-eight, according to amount of infection.

Second Sitting: At this sitting, spray or syringe out the mouth thoroughly. Isolate the tooth with sterile rubber dam. Wipe the tooth and all adjacent parts with alcohol or iodine; remove stopping, open tooth thoroughly, being careful to remove any and all decayed and infectious matter; do not be afraid to cut away tooth substance until you have perfect access to any and all canals; then, with careful outward instrumentation and curettage, open the canals to the end, being careful not to puncture the foramen, never using engine burs or reamers; use thumb-and-finger reamers and broaches. With a few threads of cotton, twisted on a smooth broach, wipe out the canals with a fifty per cent. solution of sulphuric acid several times during the procedure to break up the calcareous deposits. Do not be afraid to use plenty of acid; it will do no harm. If some gets through the foramen, follow with bicarbonate of soda; you can alternate the acid and soda several times if you thoroughly neutralize with the soda. After the canals are thoroughly curetted and cleaned with a smooth broach and cotton, pump the canals fifty or sixty times with saturated saline solution. If an open foramen or fistula, pump through, if possible. This work must all be done under surgical asepsis. Dry with cotton absorbent points and hot air.

Dress the canals and pump thoroughly with the dressing (of which I have given you the formula), pumping fifty to sixty times, stopping between pumping to blow hot air with a hot air syringe to volatilize and throw off the pure iodine into the tubuli. Be sure to use plenty of hot air. Should you have any fear of post-operative pain or swelling, place a cotton point saturated with the dressing in canals, covered with temporary stopping, for a few days.

Select a sterile aseptic gutta-percha point that is a trifle smaller than the canal to be filled. Be sure that it will reach the bottom of the canal. This can readily be determined by measurement; place in the root canal cold (that is, never heat it until it is in place); then with hot air syringe soften and pack in place, heating and packing again and

again until you have spread to form of canal, and seal. This work should be done at the second sitting. You can seal the balance of cavity with stopping or temporary cement until you make final restoration at your convenience.

Never use arsenic in a tooth, as very serious results may ensue. If you have live nerve to remove or any portion of same, do it surgically under an anaesthetic.

Eastern Ontario Dental Association

1925 MEETING AT STANLEY ISLAND, CORNWALL, JUNE 24TH, 25TH AND 26TH, TO BE A REAL OUTING AND A FINE CONVENTION.

 R. F. J. CONBOY, Director of Dental Services in the Ministry of Health for Ontario, will give an address, "What It Means to Have a Government-Appointed Dental Officer"; in other words, he will tell of the significance of his recent appointment in the Department of Health. Dr. Wickware, of Smith's Falls, long identified with educational matters and Past-President of the Ontario Educational Association, will open the discussion of this paper.

Dr. Harry Thomson, executive officer of the Canadian Dental Hygiene Council, will tell us something of the Council and some of the things he has been telling the public that we might tell our patients.

Dr. D. C. W. Coupland, on "Oral Surgery of Interest to the General Practitioner".

Dr. C. H. Juvet, on "Diagnostic Points on Orthodontia of Interest to the General Practitioner".

Dr. S. W. Bradley, on "Interpretation of Radiograms".

These papers, together with a *surprise*, which the programme committee promise us for a later announcement, will make a worth-while convention.

A good variety of clinics will be announced later. The situation is ideal, and the entertainment is in the hands of the Cornwall Dentists. This means a good time for everybody.

Bring the family. The hotel accommodates two hundred.

Remember the place and date: Stanley Island, June 24th, 25th and 26th, 1925.

THROUGHOUT CANADA

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MARITIME PROVINCES.

THE last regular meeting of the Halifax Dental Society for the session 1924-25 was held on the 16th of May. Instead of a dental meeting, it was a social one. Dr. Beckwith arranged a programme for the evening, which was much enjoyed.



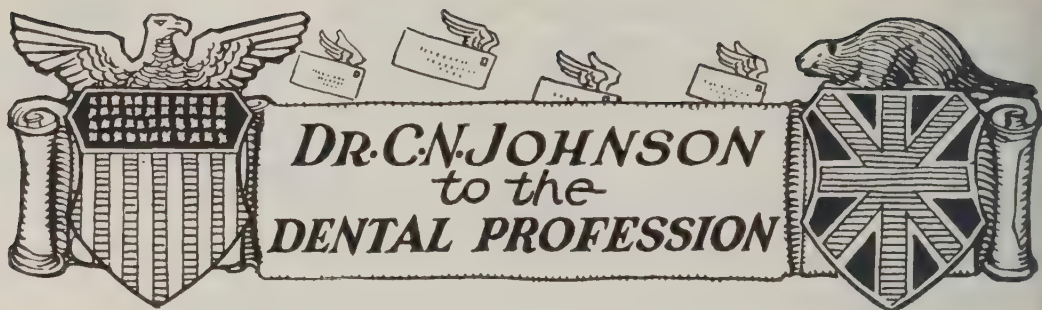
Plans are going ahead to make the meeting of the Nova Scotia Dental Association at Digby, on July 16-17-18, one of the best yet. A special attraction will be the presence of a metallurgical expert from the Williams Co., who will give a series of talks and demonstrations on the manipulation of wrought and cast gold alloys.



The following have completed their course in Dalhousie Dental College: C. T. Browne, N.S.; W. G. Dawson, N.S.; A. A. Dunlop, N.S.; D. E. Green, N.S.; R. E. Hennigar, N.S.; L. A. Johnston, P.E.I.; B. DeW. Lavers, N.S.; T. H. Lewis, N.B.; N. M. Losada, St. Kitts, B.W.I.; D. L. McDonald, N.S.; G. S. Macdonald, N.S.; M. H. Nicholson, N.S.; R. H. Stanford, N.S.; M. W. G. Willigar, N.S.

J. S. B.

CLEANING OF CASTINGS.—Unless made out of pure gold, all castings are oxidized, and have a certain amount of adherent investment. Unless cast out of clasp alloys, heat the casting to a cherry red and plunge into hydrochloric acid and repeat. Then take the casting and, with a soft bristle nail brush, scrub it with water and soap to remove the loosened silica.—*Journal of the American Dental Association.*



They Like It

THERE is a certain class of people who like to be humbugged—on no other basis can we account for their behavior. The most improbable story in the world appeals to them, even though they may know in their hearts that it is not true. This represents a peculiar angle in human nature, but it is apparent in full force with many people—particularly with some of our patients. They will listen to the lurid tale of some excitable extremist and drink it in with avidity, while the sane and deliberate opinion of one who looks calmly on all sides of a question falls on deaf ears. Unless something dreadful can be found in an X-ray picture of their teeth they are depressingly disappointed. They at least *must* have an abscess, and if a little spice can be thrown into the situation by such terms as “osteoclasia” or “periodontoclasia” they at once become ecstatic. The fact that they know absolutely nothing about these terms lends enchantment to the view. To be told that they have “pus pockets” around the teeth is a triumph—it is a justification of the fact that they knew something terrible was wrong with them. A man who finds nothing amiss with their teeth is a failure in their eyes. They just positively *know* that they have a list of the most dreadful diseases in the category. To them it is a matter of distinction to be more uniquely afflicted than anyone else, and woe betide the practitioner who has the courage to tell them that they have no ailment—they will have none of him.

Straightway they seek some sympathetic ear to listen to their “symptoms,” and usually they find one. There are plenty of men in the profession who are big-hearted enough to accommodate them—some so very generous that they will even aid the patient by painting the most lurid picture of what is going on in the patient’s physical economy.

It is a great game, and it is a game that is being played too promiscuously in these latter days. There are too many practitioners who lend themselves to the whims of the patient in this respect, and who exaggerate every small ailment into a dreadful disease. With patients of this type to have something monstrously wrong with them is to achieve renown,

and by the same token it is about the only kind of renown these individuals ever get.

The chase for the spectacular does not end to-day with the theatre or the moving picture house—it has invaded the ranks of the professions, and the simplest service has suddenly become a major operation. The patient glibly and gloriously tells of the terrible time experienced in the extraction of a tooth. “The roots were clinched around the jaw bone, and the doctor had to *cut* them out—there was no other way. And do you know, the bone was *so* diseased that he had to scrape it after the tooth was out—and then he had to take *stitches* in the gum—oh, it was a perfectly *awful* operation!—you should have seen it. I think the Doctor is *wonderful*.”

The temptation is great to play to this sort of thing, and too many practitioners are doing it to-day—which is not good for the welfare of the patient or the *morale* of the profession. In daily practice we are of course called on to make many concessions to the foibles of the patient, and a certain amount of this is not only permissible but praiseworthy. It helps to lubricate the machinery of office routine, and to smooth down the rough places in professional life. But to make a persistent practice of patronizing the neurotic whims and playing to the sensation-loving vagaries of the type of people under consideration is not only detrimental to them but demoralizing to the profession.

Even if they do like to be humbugged, and even if the temptation is accordingly great, there can result no possible good from encouraging their ill-advised love of the spectacular. We as a profession should place ourselves firmly between these people and the resultant harm which inevitably comes to them from pursuing such a course. In other words, we should try to bring them to their senses, and give them a true vision of what is real and what is unreal in their physical ailments. In doing this we shall fail in making upon them the impression which otherwise we would, but we shall do them a greater good, and in the end we shall be able to look them more fairly in the face.

What is even more important, we shall thereby raise the status of the profession and become known among men as followers of a calling which takes more to heart the welfare of the people we serve than the spectacular effects produced on them or the material returns from the service. We cannot afford to exploit people, nor even to permit people to exploit themselves.

C. H. Johnson

Officers of Canadian Dental Organizations

Oral Health will be Pleased to Receive Additions or Corrections that Directory
of Names May be Kept as Accurate as Possible



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DIRECTORY of DENTAL MEETINGS & OFFICIAL ANNOUNCEMENTS

*Dental Associations are Invited to use this Department Freely for
Announcements of Meetings*



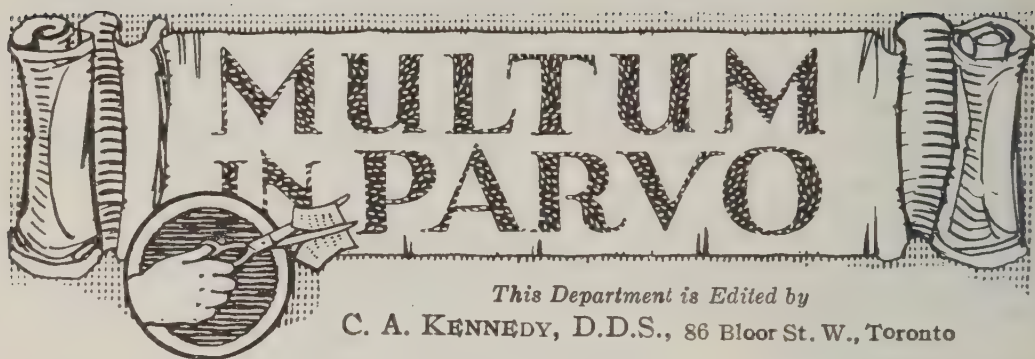
EASTERN ONTARIO DENTAL ASSOCIATION—1925 Meeting at Stanley Island
(Cornwall). Wednesday, Thursday and Friday, June 24th, 25th and 26th, 1925.

CANADIAN DENTAL ASSOCIATION—1926 Meeting at Halifax, N.S. Date to be set by
Executive.

NOVA SCOTIA DENTAL ASSOCIATION—At Digby, 16th, 17th, 18th July, 1925.

AMERICAN DENTAL ASSOCIATION—1925 Meeting at Louisville, Kentucky, 21st to 25th
September, 1925.

INTERNATIONAL DENTAL FEDERATION—1925 Meeting at Geneva, Switzerland, 2nd
to 6th August, 1925.



TO HARDEN PLASTER.—Plaster allowed to remain in saturated solution of boracic acid (using hot water) and three per cent. strong liquid ammonia, will make model like marble. Coat with boiled alum.—*Dental Science Journal of Australia.*

BLEMISH IN BRIDGE WORK.—For a blemish in gold crown or bridge work, caused by borax, etc., try a pellet of gold foil mixed with a little mercury. After cleaning out blemish, apply above, and well work in, a little at a time. Remove mercury over flame. If necessary apply again. Polish with paper discs.—*Dental Science Journal of Australia.*

POST ANÆSTHETIC VOMITING.—Somewhere I read—I think in a medical journal—of adrenalin chloride as a reliable specific to check this very distressful condition. I made a note of it and, recently, in a hospital case when other remedies had been tried by the anæsthetist, it was instantly effective. Dose: 5 to 8 minims, P.D. 1 in 1,000, in 3 to 5 c.c. (1 to 1¼ drachms) water, by the mouth.—*Dental Science Journal of Australia.*

Dentist Wanted as Head of Dental Department in Chinese University

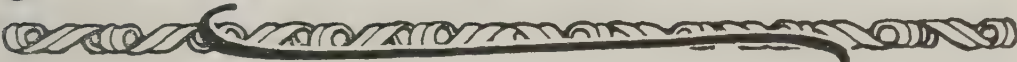


PROMISING position is open to an ambitious dentist of sound Christian purpose and adaptability to become a missionary and join the staff of Shantung University, China, to undertake the development of a Dental Department in that large University, where there now exist Arts, Medical, Theological and Normal Faculties.

This University is under the control of some fifteen Missionary Boards in England, United States and Canada, and has a very promising future.

Applications or requests for information should be sent to Rev. A. E. Armstrong, 439 Confederation Chambers, Toronto.

Oral Health



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Vol. 15

TORONTO, JUNE, 1925

No. 6

EDITORIAL

The School of Dentistry of the Royal College of Dental Surgeons to Become the Faculty of Dentistry of the University of Toronto

 HE members of the Royal College of Dental Surgeons of Ontario have by ballot declared themselves as being in favor of the School of Dentistry of the R.C.D.S. becoming the Faculty of Dentistry of the University of Toronto. The vote was 855 in favor and 12 opposed. With such a mandate the Board of Directors at their recent meeting proceeded with arrangements for the transfer of the School of Dentistry to the University along the general lines of the proposed plan as recently outlined to the members of the College by the Board of Directors. It is expected that the

agreement will take effect at the close of the present University year, 30th June, 1925.

The School was organized fifty years ago, and thirteen years later, in 1888, was affiliated with the University of Toronto. In the year 1900 arrangements were completed that resulted in the same examinations being accepted for both the title of Licentiate of Dental Surgery and the degree of Doctor of Dental Surgery.

The President of the Board, Dr. E. E. Bruce, reported that negotiations were opened by the College in 1905 with a view to bringing about closer relations with the University, and these have been continued intermittently to the present time. Committees were appointed by the Board and conferences were arranged in 1905, 1907, 1913, 1918, and again in 1924. Until the present time the University has always found itself unable to incur the added responsibilities of a Faculty of Dentistry. The favorable consideration of the Honorable the Minister of Education and of the Ontario Government has made it possible for the University to now take a much greater interest in dental education through the establishment of a Faculty of Dentistry.

It is the School of Dentistry, and not the Royal College of Dental Surgeons, that is being transferred. The Royal College of Dental Surgeons is the corporate and official name of the Dental Profession in Ontario. The R.C.D.S. will still elect a Board of Directors, which will continue to issue the license to practise, collect the licentiate's annual fee, and exercise supervision over the practice of Dentistry and the members of the "College." It is the teaching function, exercised by the R.C.D.S. through its School of Dentistry, that is being surrendered and transferred to the University.

There has been considerable misunderstanding on this point. Many people have considered the Royal College of Dental Surgeons and the School of Dentistry to be precisely the same. When the School is transferred to the University, the occasion for this misunderstanding will be at an end. Everyone will appreciate that the teaching function is exercised by the University through a Faculty of Dentistry, while the licensing and disciplinary functions of the profession will continue to be exercised by the R.C.D.S. (the Dental Profession in Ontario) through an elective Board of Directors.

The committee charged with the responsibility of arranging for transfer of the School to the University, and appointed by the Board of Directors for this purpose, is composed of R. Gordon McLean, A. D. A. Mason, W. G. Thompson (Hamilton), W. M. McGuire (Simcoe), A. M. Kennedy (London), Wallace Seccombe and W. E. Willmott.

"Be not the first by whom the new are tried,
Nor yet the last to lay the old aside."

*(Essay on Criticism—
Alexander Pope.)*



W. E. CUMMER, D.D.S., F.A.C.D., *Toronto.*

ORAL HEALTH

*A JOURNAL THAT STANDS FOR THE OUNCE OF
PREVENTION AS WELL AS THE POUND OF CURE*



Vol. 15

TORONTO, JULY, 1925

No. 7

An Effect—Its Cause and a Remedy

W. E. CUMMER, D.D.S., F.A.C.D., TORONTO.

AN EFFECT.

THE last of a long series of sittings has almost ended. The bridge, into which the dentist has built the best efforts of his hand and brain, has gone to its place, true to the breadth of a hair. The cement has set, and with the last vestige removed, the patient, mirror in hand, expresses by word, and still more eloquent look, that satisfaction has come from anticipation which has been excelled by the reality.

Yet, drawing aside a little, the veil of the future, nothing but black failure looms ahead. The exquisite piece of craftsmanship is beautiful still, but alas, it now lies upon the operating room table and with it the two natural teeth to which it has been attached. All has been lost because, inadvertently, "the forces of Nature have been turned to destruction rather than benefit." And how?

THE CAUSE.

No structure is greater than the foundation upon which it rests. Prosthetic workers rear their structures upon the subjacent bone through either remaining teeth or roots; or upon the mucous membrane tissues; or upon a combination of both, as the special conditions may indicate.

All of these are not inert, but are living tissues subject to physiological laws. These laws, among other things, hold that, when natural teeth are present and function together, a state of what has been called, in turn, anatomical articulation, anatomical occlusion, and, of late, physiological occlusion, shall obtain. Box* has defined physiological occlu-

*Bulletin No. 8, "Articulation for Partial Dentures With the Snow Apparatus and Wadsworth Incisor Guide," issued by the Canadian Dental Research Foundation July, 1924. This Bulletin may be had on application to the Secretary C.D.R.F., 240 College St., Toronto.

sion as "a condition in which the systems of forces acting upon the tooth during occlusion are in a state of equilibrium, and do not and cannot change the normal relationship existing between the tooth and its supporting structures."

This state of physiological occlusion, as defined, cannot, in a real sense, be obtained without a working knowledge of mandibular movements, any more than the teeth on a gear wheel may be made to occlude with those of another gear wheel unless the dimensions and movements of each are known. Failure to proportion a gear tooth according to mechanical laws spells fracture, and often disintegration; failure to build artificial teeth to function with remaining natural teeth according to physiological laws results in a pathological sequence which, if unchecked, results, in turn, in disease and in the loss of natural teeth.

And so it has been with our bridge of the first part of the story, and may be with our partial denture on one hand, and with our crown, inlay and filling, on the other hand.

For, built as they may be to occlude in one phase of function, namely, central or centric occlusion, the requirements of which may be seen in the mouth, can it not be said that there are failures such as these without number, because these restorations are not built to function with the various other phases of eccentric occlusion, which, to be properly seen, must be correctly mounted upon a properly adjusted articulator, and which involves many eccentric positions of incision and side bite. To ensure success in all prosthetic work, all of these must be accounted for. And how?

THE REMEDY.

Artificial dentures constructed under the principles of anatomical or, as latterly called, physiological occlusion, do not, when the other demands of denture service are properly met, result in the loss of natural teeth by traumatic occlusion.

The remedy proposed is simple, and consists of (a) a simple and inexpensive adjustable articulating apparatus and (b) a working knowledge of the principles involved and for handling the apparatus in practice. No haphazard articulation on a plane line, or on an anatomical articulator, followed by spot-grinding with carbon paper at insertion, will ever take the place of this.

For full denture service, the literature is enriched by the work of Gysi, Bennett, Snow, Christianson, Prothero, Walker, Hall, Hanau, Monson, Tench, Clapp and others; and the dentists' equipment by the appliances of Gysi, Snow, Hanau and others. With the latter, the principles with suitable procedures have been definitely laid down, so that any dentist may use them. To assist its clients in both partial denture, and in bridge service, the Canadian Dental Research Foundation

has issued a Bulletin. This Bulletin lays down in simple language, illustrated by many drawings and photographs, the more important principles, with a simple and definite technic, based on the use of the well known Snow New Century Articulator, and Snow Face Bow.

ADVANCED TECHNIC—THE CONCERN OF THIS ARTICLE.

While the foregoing and comparatively simple system is effective in a large percentage of cases, yet there are further refinements of technique which are not possible with this apparatus. To the advanced worker these are essential for his satisfaction; and a brief reference to two of these movements, and the articulators upon which these may be reproduced, here follows. It may be noted that a fuller working knowledge of each of these instruments mentioned here may be gained by the study of the literature relating to each.

TWO MANDIBULAR MOVEMENTS NOT ACCOUNTED FOR IN THE FOREGOING TECHNIC.

Two of these mandibular movements would be included in Gysi's estimate, in which 25 per cent. of all full denture cases are abnormal cases ¹ (requiring an adjustable articulator). These movements require

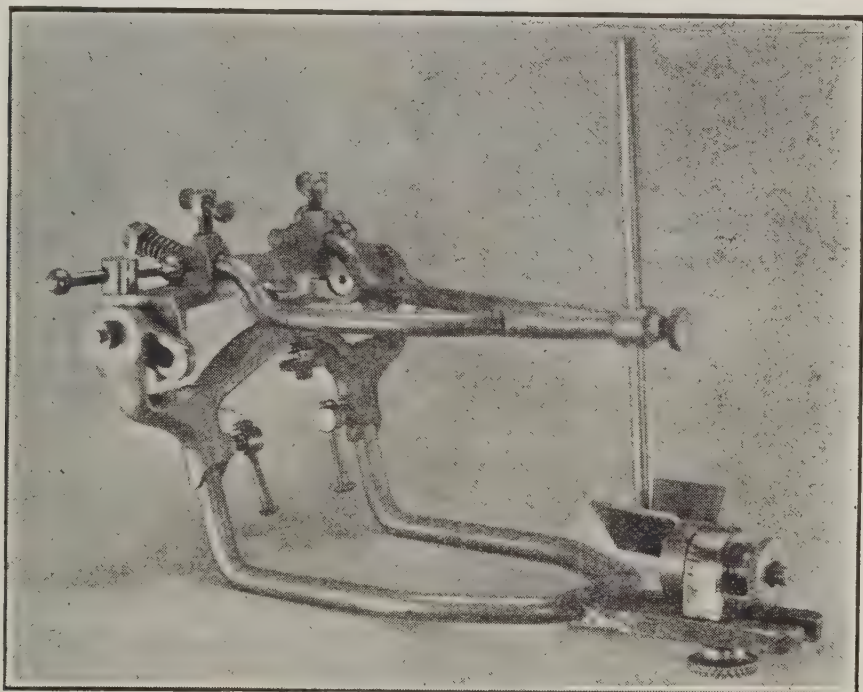


Fig. A. The Snow Articulator, with Wadsworth Incisor Guide, the use of which is described in Bulletin No. 8, Canadian Dental Research Foundation. "Anatomical Articulation for Partial Dentures."

(¹) P. 672 Dental Digest, 1920. The writer acknowledges with thanks the cuts secured from The Dentists' Supply Company, and quotations from the text from Professor Gysi's article in the Digest.

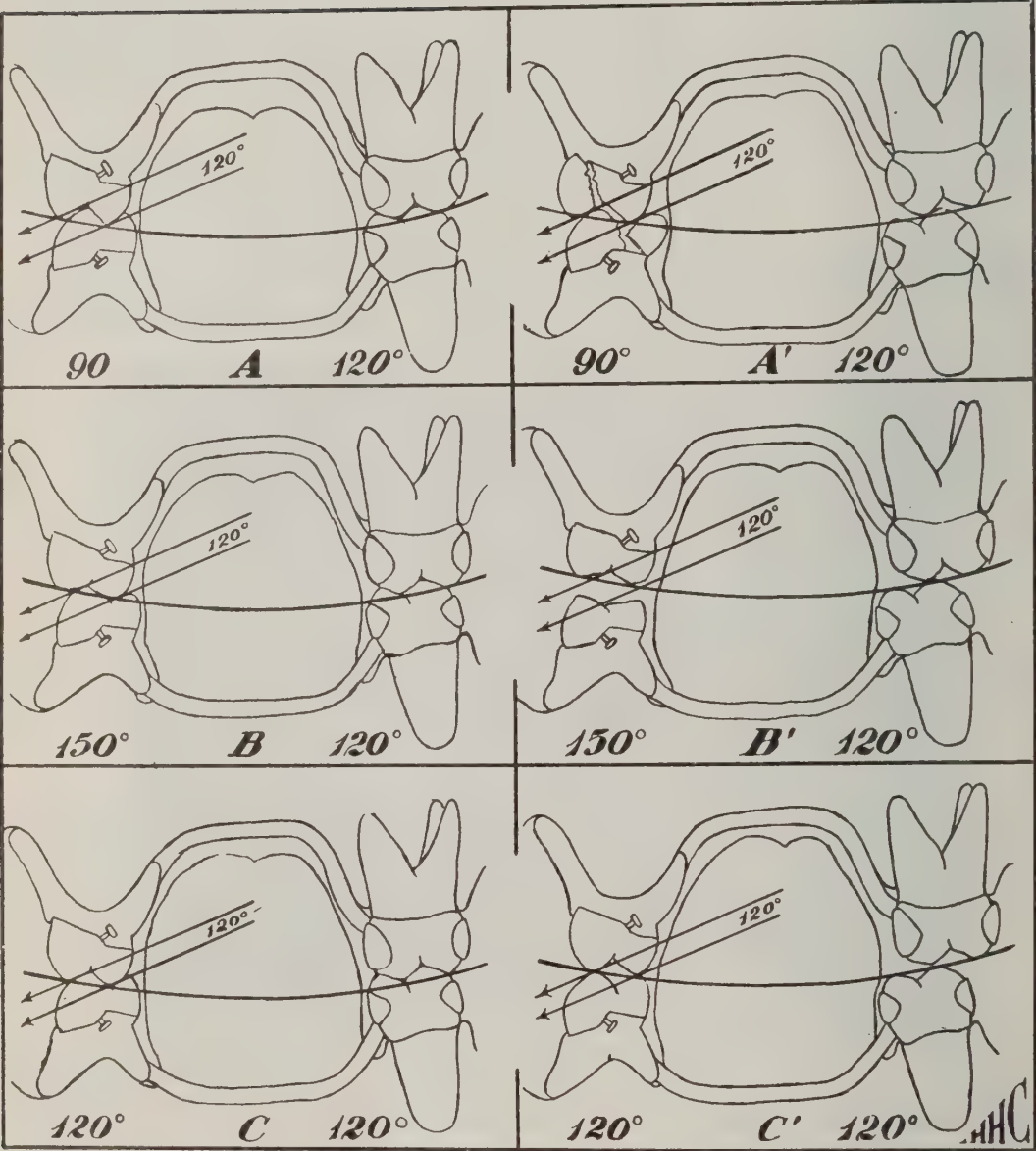
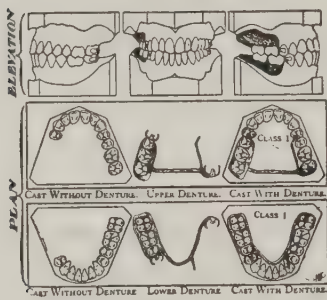


Fig. B. One of the results of Faulty Articulation, as described. Bulletin No. 8.

in the articulator (a) adjustment for variable rotation centres, and (b) adjustment for incisor guidance on a vertical as well as on a transverse plane. The variable mandibular movements requiring these adjustments are, respectively, (a) various mandibular movements about rotation axes, and (b) various mandibular incisor paths.

MANDIBULAR MOVEMENTS ABOUT ROTATION CENTRES AND AXES.

About the year 1911, Norman Bennett, of London, England, made a geometrical explanation of the peculiarity of mandibular movements in which the condyle moves in a slight degree outward in the glenoid fossa on the working side of the jaw.

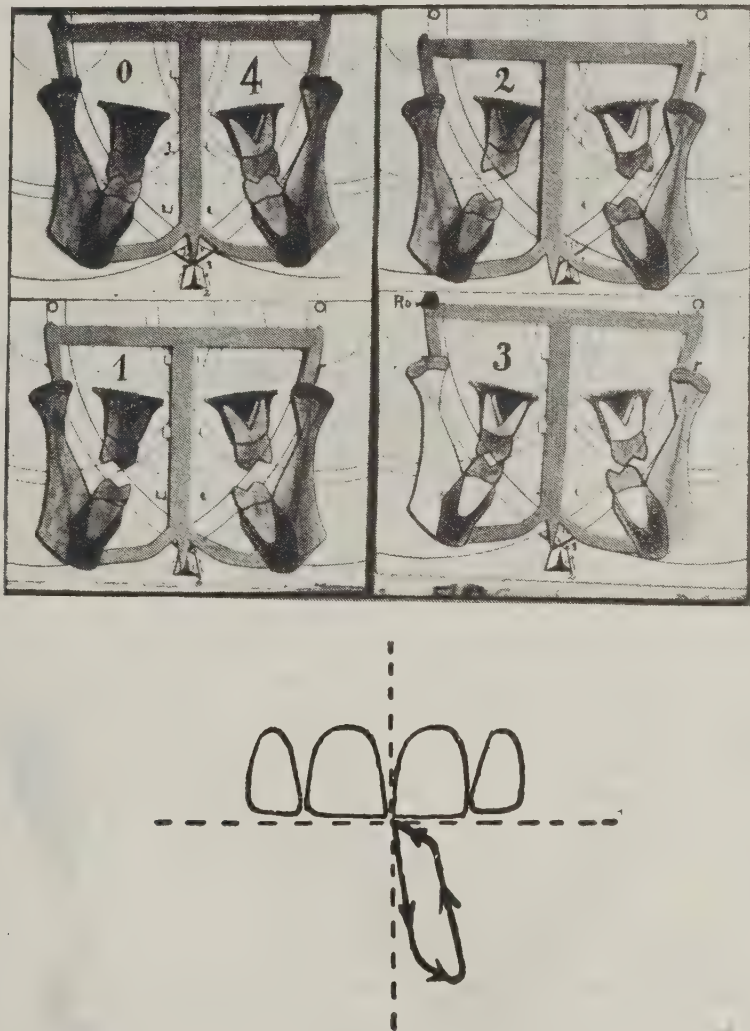


Fig. 40.—Mandibular movements, according to Gysi. The above illustrates the lateral movements diagrammatically on the transverse plane. (Gysi.)

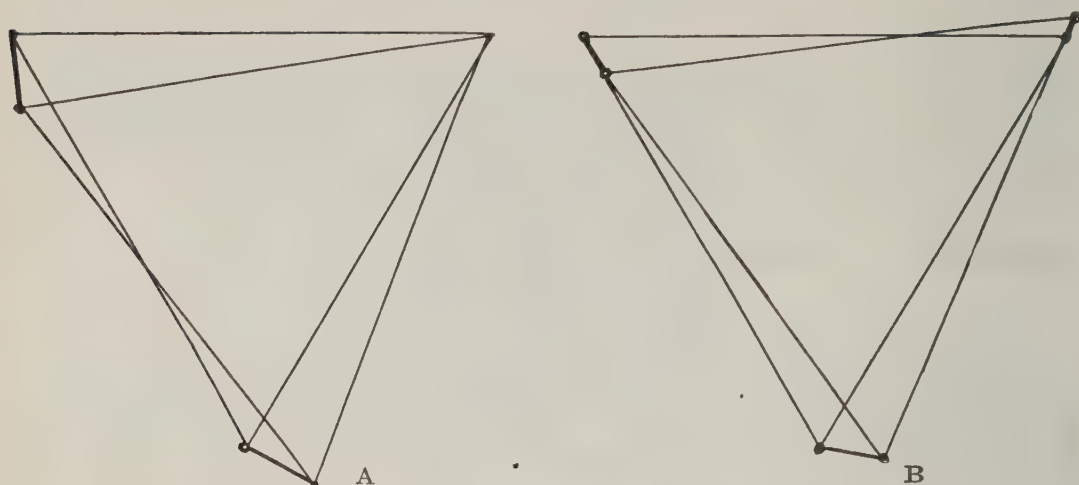


Fig. 41. Schematic representation of the correct and incorrect theories regarding the movement of the mandible at the condyle during lateral movement referred to in text.

A Indicates the mandible swinging to a left excursion, with the left condyle as the centre. This does not occur in Nature, but from a centre away from the condyle in various locations, of which B is one.

It had been supposed that when the jaw was swinging to the masticating side that it was simply swinging in a rotary movement with the opposite condyles as centre. Dr. Norman Bennett shows this to be incorrect, and that in the lateral mastication movement, the whole mandible moves inward laterally as well as forward, while on the other side the condyle, instead of merely rotating (Fig. 41A), moves slightly outward (Fig. 41B). See also Figs. 42A and B.

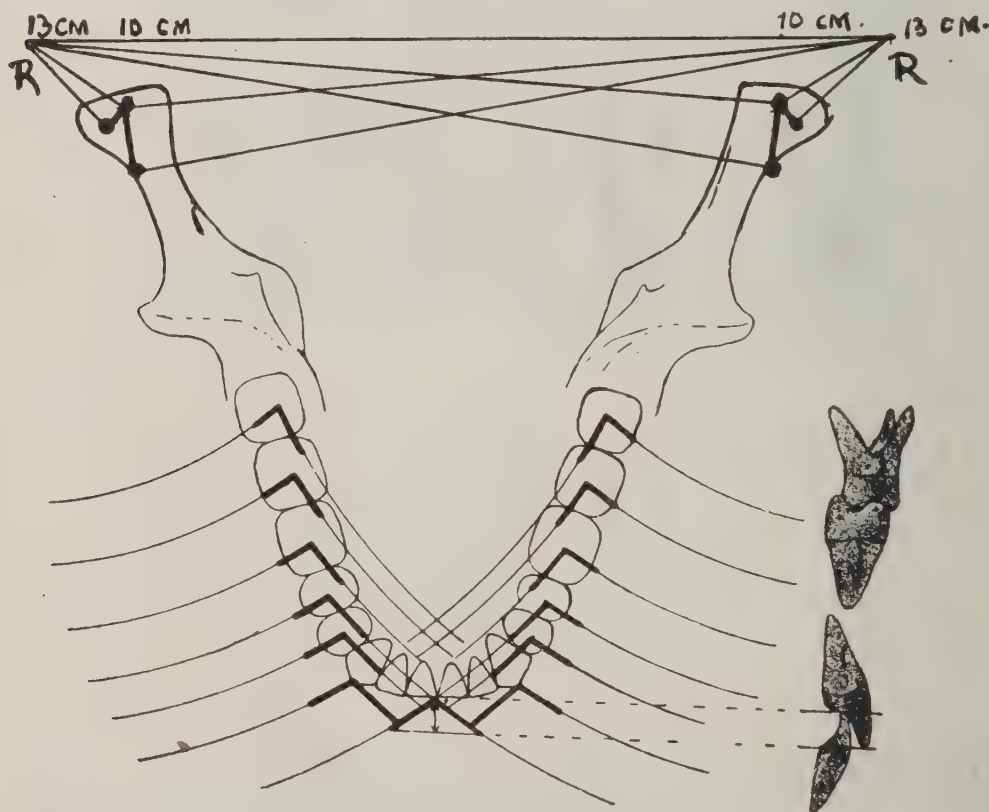


Fig. 42A.

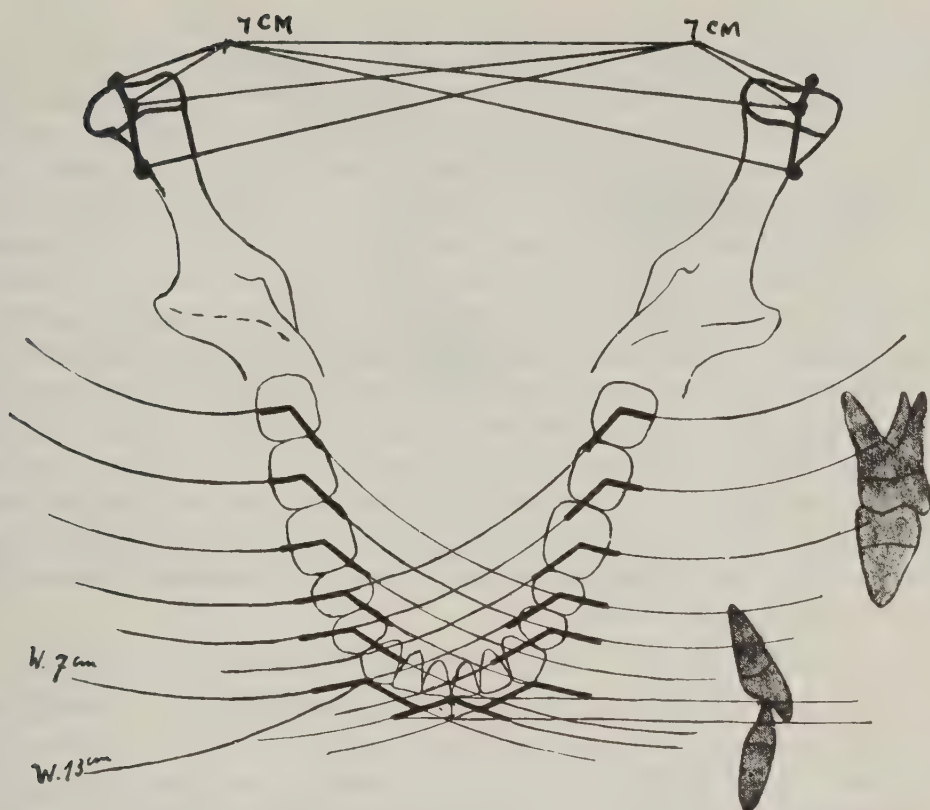


Fig. 42B.—Mandibular movements on a horizontal plane. (Gysi.)

Fig. 42A shows rotation axes 13cm. apart from the greatest distance, and to the distal. In a side movement, say towards the left of the page, the jaw is swung, not from the condyle, but at the left hand R, the rotation axis. The condyle nearest it takes the short path, the ends of which are joined to the two short radii running from R, and the condyle farthest away from R follows the longer paths, the ends of which are joined by the two longer radii from R. The heavy lines, therefore, denote the travel of the condyle in the glenoid fossae. Note also, running from the centre of the teeth themselves, the oblique lines which represent the travel of the upper lingual cusps in side movements. In a side movement towards the left of the page, the lingual cusps on the upper on the right side of the page would describe areas obliquely forward on the occlusal surfaces of the teeth on the right side of the sketch, while on the masticating side or side nearest the rotation point, the cusps of the upper travel buccally through the intercusp spaces. Fig. 42B is similar to Fig. 42A, except rotation axes are 7 cm. apart instead of 13 cm. If the mandible swings say to the left of the page, it swings from the left hand R or rotation point, and on the left side the condyle describes the short arc of the circle with R as centre, joined at each end by the two short radii; while on the other side the condyle travels forward, describing the arc touched at either end by the longer radii from the left hand R. Note in Fig. 42B the difference of the cusp travel in the two lines described by the lower cuspid, one with rotation points at 7cm. and the other at 13 cm.

Fig. 42 indicates this movement at the condyle, explained by Bennett as due to difference in position of imaginary rotation centres, lying in, as Gysi later describes, imaginary rotation axes, from which the jaw swings in its lateral excursions. The point of importance, however, is the difference in travel of the individual cusps, as shown in Fig. 42-B

by two lines passing from the right cuspid (reader's left), one marked W.7 cm., and the other marked W.13 cm., meaning, in one case, the line travelled by the cuspid when the rotation axes were 7 cm. apart, and in the other case, the line travelled by the cuspid when the rotation axes were 13 cm. apart. In the molar region, it would mean that, should teeth be set up on an articulator with the rotation centres 7 cm. apart, and the uppers made to intercusate with the lowers in the articulator, when transferred to the patient's mouth, whose mandible moved on rotation centre 13 cm. apart, the upper and lower cusps, instead of passing *between*, as on the articulator, would tend to pass *through*, and would ride up on these cusps instead, creating a serious interference.

While the Snow articulator, which rotates on the horizontal plane from 4" or 10 cm. centres, is constructed for the average case, yet should the variation in rotation axes be extreme, one way or the other, difficulty might occur which could not be overcome in the regular manner, namely by the use of carbon paper and spot grinding, without this adjustment on the articulator.

GYSI'S METHOD FOR LOCATING THE ROTATION CENTRES.

If a flat plate is laid on the lower teeth or trial plate, coated with black wax, and a scriber attached to the upper teeth or trial plate, and the patient requested to make side movements, a so-called Gothic arch will be traced. Fig. 43, 44 and 45 indicate both the method used to register, and to reproduce, rotation centres on the articulator.

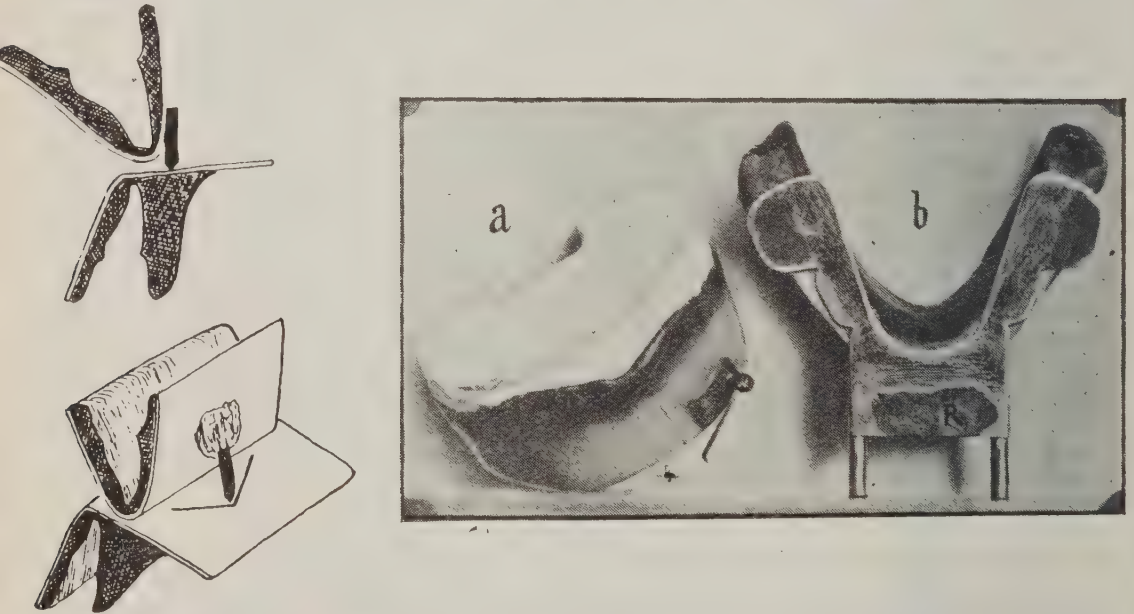


Fig. 43.—Tracing the Gothic arch with the natural teeth remaining. Sheet air chamber metal is bent into two forms, as above, and to one the graphite of a lead pencil is fixed with wax and the Gothic arch is traced upon the other. The angle contained within the arch is used to find out the position of the rotation centres. (Gysi, Dental Digest, 1920.)

The rotation axes, as described by Gysi,² are concerned chiefly with full denture construction. They may be noted (Fig. 46 and 47) as having to do with the lingual buccal form and longitudinal groove of the occlusal surfaces of the artificial teeth, in both full and partial restorations.

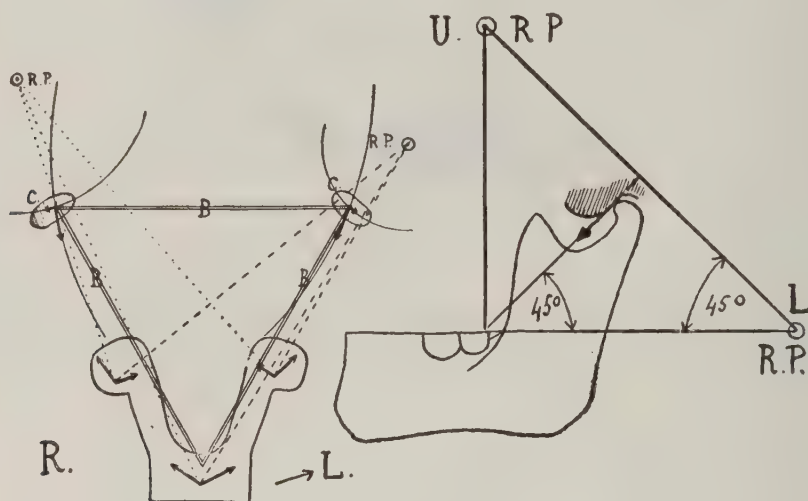


Fig. 46.—The rotation axis as a part of the rotation point. The rotation point here is the lower rotation point. The relation of the condyle path to the rotation point or axis may be noted here, as described by Gysi, (Dental Digest, 1920.)

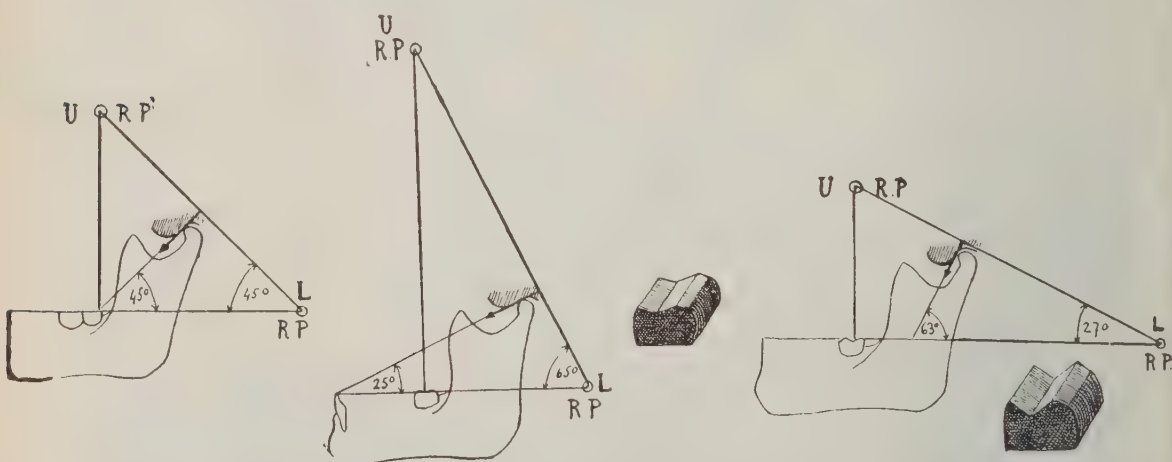


Fig. 47.—Different condyle inclinations and different rotation axes as described by Gysi, (Dental Digest, 1920.)

THE INCISOR PATH.

In partial dentures, as well as full dentures, it is often desirable, for esthetic reasons, to provide a certain overbite and overjet, resulting in an arbitrary incisor path.

(²) Page 722, Dental Digest, 1920.

To secure balanced occlusion, this must be provided either by setting the posterior teeth according to the compensating curve and opening axis, as described by Gysi,³ or adjusting those facets of the upper teeth looking backwards against those of the lower teeth looking forwards;—or both of these methods in conjunction.

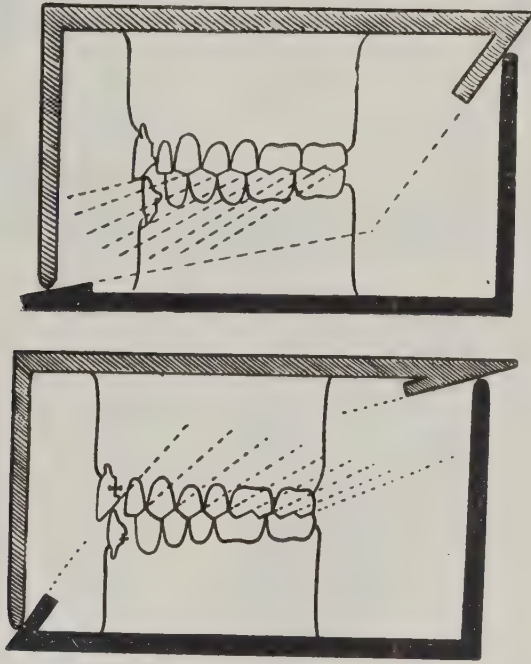


Fig. 48.—The incisor path and balanced occlusion. This diagram shows balanced occlusion through the tooth facets only, and without a perceptible compensating curve. A short compensating curve, including one or two molars, is often of value in securing incisal balance. (Gysi.)

Hence, a valuable feature on the articulator, is an adjustable guide in the incisor region, reproducing the movement as determined by the dentist.

The adjustment for incisor guidance on a transverse plane, which is essential in partial denture service, has been described, section 18 to 21.

THE GYSI ADAPTABLE ARTICULATOR. (1924).

The new Gysi Adaptable Articulator is described (in French) in an article by Dr. Francois Ackermann, head demonstrator for Dr. Gysi, in the *Schweizerische Monatsschrift für Zahnheilkunde* of July, 1924.

It is apparent that all of the necessary movements are incorporated into his instrument, and that the condyle paths may be set by check tracings and the rotation axes from the Gothic curves, as described in the article, *Schweizerische Monatsschrift*, July, 1924.

(³) Page 21, Dental Digest, 1921.

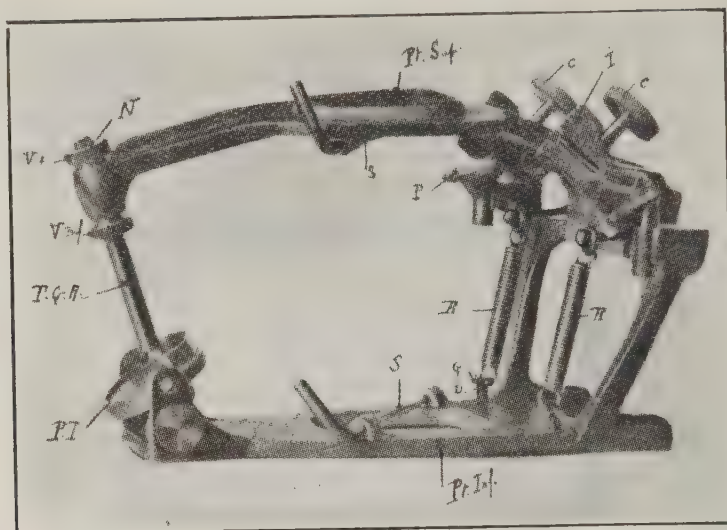


Fig. 49.—The Gysi Adaptable Articulator (1924) Schweizerische Monats-schrift Fur Zahnheilkunde. This instrument is similar to the earlier model, with which many are familiar, as demonstrated by Dr. Gysi in 1913.

THE WADSWORTH ARTICULATOR.*

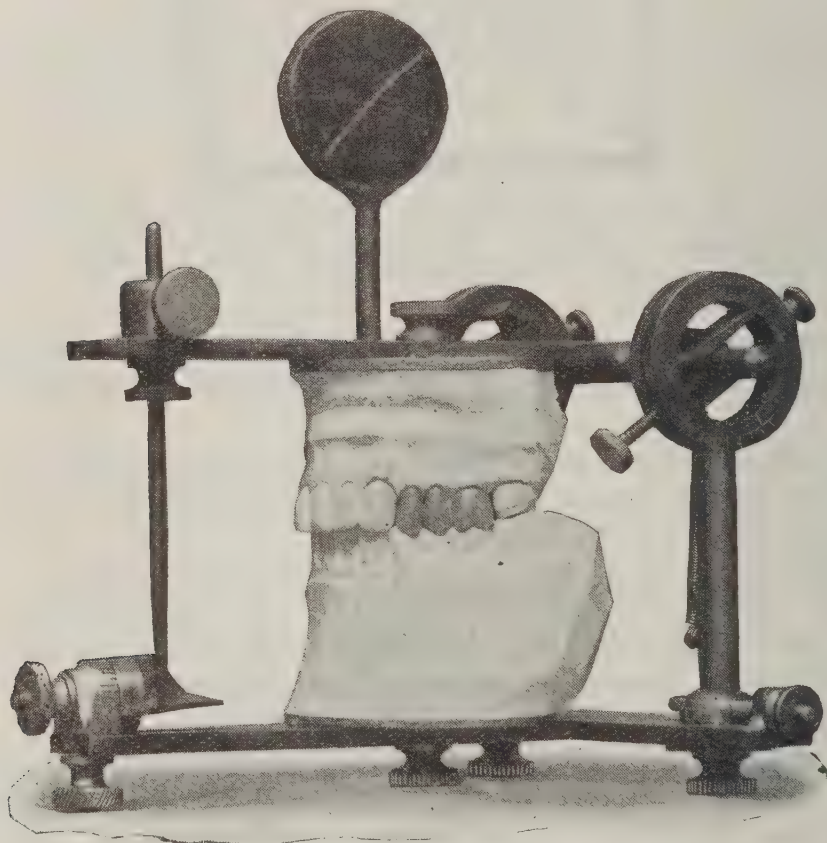


Fig. 50.—The Wadsworth Articulator.

*The sad news of the sudden death of Dr. F. M. Wadsworth, the designer of this instrument, has just reached the author. Dr. Wadsworth has made a notable contribution to Prosthetic Dental Science, and his death, in the prime of life, will be mourned by his many friends over the entire Continent.

The writer's acquaintance with this instrument, built by The S. S. White Company, is limited to the study of a booklet of 45 illustrations, issued by its makers. A study of this instrument (Fig. 50), will indicate the incisor guide, as described with the Snow Articulator, an adjustable condyle path, and an adjustment for moving the standards carrying the condyle guide in and out, for varying rotation axes.

THE HANAU ARTICULATOR WITH THE SEARS INCISOR GUIDE.

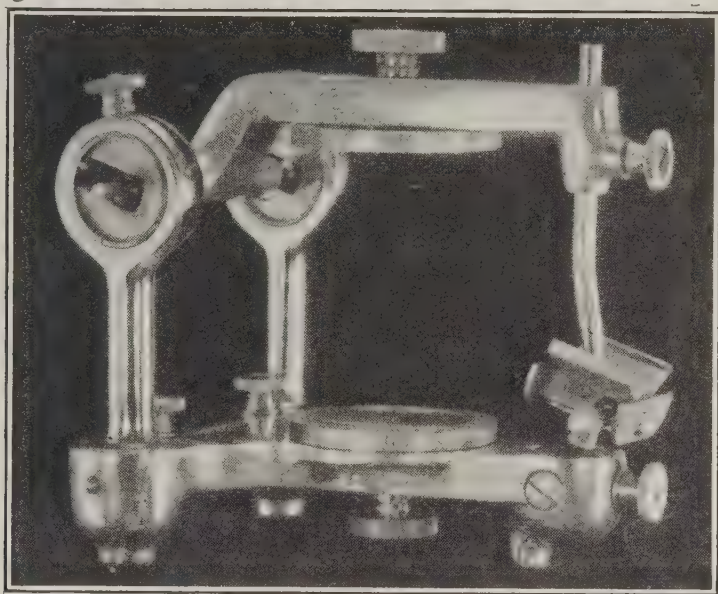


Fig. 51.—The Hanau Articulator with the Sears Incisor Guide.

The Hanau instrument is provided with adjustable condyle paths, which are set from a single protrusive bite, and an adjustment for rotation centres or axes in the standards which carry the condyle slides. These standards are graduated, may be rotated to guide the articulator according to the position of the rotation axes.

For this purpose Mr. Hanau uses a formula:

$$\frac{\text{Condyle path in } ^\circ}{8} + 12 = \text{angle of standard with vertical plane.}$$

For example:

$$\frac{\text{Condyle path } 40^\circ}{8} + 12 = 17^\circ \text{ which is the angle for } 40^\circ$$

The incisor guide mechanism, designed by Dr. Victor Sears, of Salt

Lake City, is an admirable device, which is adjustable both for sulcus angle and also for incisor guidance, as may be noted in the illustration, Fig. 51.

CONCLUSION.

Dr. Harold Box, in a foreword published in the Sixth Bulletin of the Canadian Dental Research Foundation, which carries this article, states that:

"Traumatic occlusion is responsible, in the opinion of the writer, for at least 40 per cent. of natural teeth lost to-day, from all causes. Much of this traumatic occlusion is due to bad design and construction of partial restorations, and is largely produced through bad articulation and interference of porcelain which, in most cases, throws momentarily the whole force of mastication against two or more teeth, often in a direction not coincident with their long axes."

It would then seem reasonable to propose the paramount importance of the use of a system of articulation approximating as close to the ideal as is possible, to be followed by careful insertion of the denture or dentures, checking with carbon paper as proposed, and with the necessary subsequent attention until the case is considered complete.

Understanding

"If I knew you and you knew me,
If both of us could clearly see,
And with an inner sight divine,
The meaning of your heart and mine,
I'm sure that we would differ less,
And clasp our hands in friendliness.
Our thoughts would pleasantly agree,
If I knew you and you knew me.

"If I knew you and you knew me,
As each one knows his inner self,
We could look each other in the face
And see therein a truer grace.
Life has so many hidden woes,
So many thorns for every rose.
The 'why' of things our hearts would see,
If I knew you and you knew me."

Ontario Dental Association 58th Annual Convention

HELD AT HART HOUSE, UNIVERSITY OF TORONTO,
MAY 26, 27, 28, 29, 1925.

PROCEEDINGS

TUESDAY, MAY 26TH.

The afternoon session was opened by Col. Walter G. Thompson, Hamilton, the President of the Association.

It was moved by Dr. Harold Clark, seconded by Dr. R. G. McLaughlin, "That a very hearty vote of thanks be tendered The Honorable W. H. Price, the Provincial Treasurer, and Dr. Bell, the Deputy Minister of Health, visitors present on the platform."—Unanimously carried.

It was thereupon moved by Dr. F. J. Conboy, Toronto, seconded by Dr. J. A. Bothwell, Toronto, "That the Programme as printed be the Official Programme and constitute the Order of Business throughout the Convention."—Carried.

The visitors thereupon retired.

The President of the Association, Lt.-Col. W. G. Thompson, thereupon addressed the delegation as follows:

PRESIDENT'S ADDRESS.

HE history of any great profession is always full of interest, especially to those who are in some way linked with its activities and purposes, and this applies particularly to the dental profession and its members. A period which shows marked advancement in connection with any department of our work must be admitted as being outstanding. We have passed through just such a year, and I am privileged, in my presidential address, to report great advancement in connection with a number of our professional activities.

The first development to which I would like to refer, is the appointment of a Director of Dental Services. For many years the profession had been striving to persuade the Ontario Government to establish an efficient Dental Department as part of the provincial health programme. The present Minister of Health, Hon. Forbes Godfrey, M.D., has, at our earnest request, taken this action, and we, as a profession, are in duty bound to stand behind him in this new work. His choice of a director for this department has indeed been most fortunate. The position demanded many and varied qualifications and powers; the ability to organize, a knowledge of municipal and provincial government, the gift of oratory and the confidence of his fellow practitioners. Dr. Fred J. Conboy is perhaps the one man in our profession who possesses these requisites in a marked degree, and if we ourselves had the making

of the appointment, the choice would not have been different. As the report of the Oral Hygiene Committee will show, the department is already functioning in a most efficient manner, and much important work is well under way. This appointment, however, throws an increased responsibility upon the profession. We are now brought face to face with our duty, and we see opening before us great opportunities for service. The conscientious dentist can no longer confine his attention to those who seek his services and are able to pay his fee, and be satisfied he has done his full duty. He can no longer consider himself a success, when he spends his full time supplying the dental needs for wealthy patients. A more altruistic and beneficent service is demanded. We must have a part in providing dental treatment for those who cannot afford to pay the regular fees, and especially for the boys and girls who must depend upon others for the dental attention they so urgently need. The dentists of Ontario now have the opportunity to list their profession with those that are actively concerned in benevolent and humanitarian work. The future standing and prestige of dentistry in Ontario will to a large extent be determined by the character of our present response to this great call for public service. If we are willing to sacrifice a little in order that others may receive a great blessing, we will prove ourselves worthy of respect and we will receive the commendation we merit, but if we are indifferent or self-seeking we will demonstrate to the general public that we do not possess the true professional instincts and ideals.

Business men through their service clubs have shown themselves willing to help the unfortunate and less privileged. Can we, the members of a profession, do less, especially when we are the only ones who can render the service the people need? So when opportunities for helping present themselves, let us accept them gladly and not allow self-complacency, timidity or indifference to turn our feet from the path of helpful public service.

The second development has to do with the relationship of the Royal College of Dental Surgeons to the University. I believe the profession is favorable to the School of Dentistry becoming a Faculty of the University of Toronto, and we all look forward confidently to the future developments of dental education in Ontario. Every precaution will be taken to preserve the right of the Board in regard to issuance of licenses, and cordial co-operation between the Board and the College will be assured by one of the Faculty members being elected to the Board, and three members of the Board being elected to the Faculty. I believe that under the direction of the University, dental education will continue to advance as in the past, and dental investigation and research should receive a great stimulus.

RE DISCIPLINE COMMITTEE.

May I make a plea for the true spirit of ethics in our profession as expressed in the Golden Rule. If every member will apply the principle of "doing unto others as you would that they should do unto you," to his patients and fellow practitioners, we will have nothing to fear and little to regret. By application of the Golden Rule, our conduct will always be worthy of professional men and never drag the fair name of dentistry in the dust.

It has been in the spirit of the Golden Rule that the Discipline Committee of the Board has proceeded with its work during the past year. Here I would like to compliment Dr. R. Gordon McLean and the Board upon the progress that has been made in this connection. The desire of the Board, in the exercise of its disciplinary powers, has always been to protect the public from misleading and unworthy conduct of unethical members of the profession.

The recent court judgment simply means that the profession, through its elected representative, has power to say what is proper and what is improper conduct, in a professional sense. We not only make these decisions but have power to penalize with suspension or cancellation of license those members of the profession who refuse to live up to the standard of professional conduct, as endorsed by all the learned professions. I would urge all the members to attend the complimentary dinner at the College to-night and hear I. F. Hellmuth, K.C., discuss the question of professional ethics and discipline.

Your Board of Governors made a radical change when we decided to hold this convention at the University, but we were delighted with the enthusiastic way in which the news was received by the profession.

The hotel was in many ways satisfactory, but our present convention home offered many facilities which could not be obtained at the King Edward. We sincerely hope that the programme and general arrangements will meet with your whole-hearted approval. The work of arranging for such a large convention is by no means easy and the publicity work takes a vast amount of time. The day is now past when the detail work of such a meeting can be done by voluntary workers.

The secretary should take charge of the complete organization and receive his instructions from the Board of Governors. It would not be necessary, then, to select the majority of the Board from the convention city, but they could be elected from all parts of Ontario, and thus a more general province-wide interest would be created and the attendance increased. A number of dentists have spent far more time serving on committees than they should, but now the membership of the Association is sufficiently large to warrant us giving an honorarium to our secretary,

which will allow him to carry out all the detail work. Your executive should take the necessary steps to bring about a more fair and efficient arrangement.

The programme this year contains more papers and addresses than usual, and many of the dentists in attendance would like copies of the material presented. It would be an excellent thing to instruct the executive committee to read the various papers, discussions, and reports and, after editing them, forward the copy to the two journals for publication.

In conclusion, I desire to thank the members of the Board of Governors and all others who assisted in connection with the work of this convention. Many men who were not in an official position did excellent service in connection with the publicity, and to all these the Association is indebted. The profession of dentistry is to-day in a very healthy condition, and a fine spirit of harmony and good-will exists. The individual members are anxious to so improve themselves that they may render the best possible service to their patients and give generous and whole-hearted assistance in connection with public health activities. Times have been hard, the people have suffered from business depression and unemployment, but fortunately the economic outlook seems brighter, and dentists can look forward to a period of helpful, happy service in the interests of their fellow men.

It was moved by Dr. J. A. Bothwell, seconded by Dr. Lougheed, "That the President's address be printed in the minutes."—Carried.

Dr. F. J. Conboy thereupon, referring to the matter of by-laws and Constitution of the Ontario Dental Association, brought up the matter of electing two members to the Board of Governors, and asked that this be deferred until the regular business meeting of the Convention, and the Nominating Committee be instructed to bring forward nominations for this post. The meeting being in accord with this, Dr. Conboy so moved, seconded by Dr. J. C. Devitt, and it was carried.

Dr. Thompson, the Chairman, thereupon named the Nominating Committee, to be constituted as follows: Dr. F. P. Moore, Hamilton, Convener; Dr. Ross Thomas, London; Dr. Sprott, Barrie; Dr. Bonnycaste, Bowmanville; Dr. Spaulding, Toronto.

After various other announcements re details of Convention, Dr. Thompson asked Dr. F. J. Conboy to take the chair, as Dr. J. C. Devitt, the Vice-President, was suffering from a cold and found it inconvenient to act.

Dr. Conboy assumed the chair and conducted the ensuing proceedings.

At request of the Chair, Dr. Harry B. Johnston, Atlanta, Ga., thereupon addressed the Convention on "Pulp canal opening and filling" and "The positive destruction of apical infection," as follows:

Pulp-Canal Opening and Filling By Diffusion Technique and Results of Electrolytic Medication

HARRY B. JOHNSTON, D.D.S., ATLANTA, GA.



THE most gratifying sign in dentistry to-day is the thinning ranks of the so-called "hundred percenters." Just a few short years ago when so many of our most able practitioners were overwhelmed by a mass of reports by both physicians and dentists (mostly the former), in evidence of systemic damage done by periapical foci, they threw up their hands and surrendered without a struggle. In fact, many of them seemed to take the utmost delight in confessing their inability to cope with a simple infection. The distinguished leaders in this defection were enthusiastically followed by hundreds of the younger practitioners who joyfully hailed exodontia as a simple and speedy deliverance from the tedious and tiresome pick, pick, pick, and treat, treat, treat, of root-canal work. This is not to be wondered at in the case of the young practitioner, but it is to be wondered at that the veteran should, by one-sided statistics (emanating principally from the laboratory) and half-baked deductions therefrom, be suddenly swung from a position of ultra-conservation to one of vicarious extraction. Those were gloomy days for dentistry and it really seemed that we were in a fair way to have the word "doctor" extracted from our degree and the word "mechanic" substituted therefor. Our professional sun had for many gone into total eclipse behind that small, dark shadow on the radiogram. But now, thanks be to God, this shadow is lifting. The mask of our bugaboo has been removed and we find only a small boy behind it.

This retrogression did, however, serve the very valuable purpose of inducing intensive study on the part of those who remained loyal to their title of doctor, and is bringing to us more definite methods and technique of dealing with these conditions. Our sun is beginning to shine again. In fact, I think I may say that recent experiments and masses of clinical evidence reported from many quarters have about brought it to noon-day intensity, except for those who have not yet considered all the evidence.

We have proved beyond question that a pulpless tooth is not necessarily a "dead" tooth.

We have proved that a large percentage of teeth which have been pulpless from a few weeks to many years are sterile.

We have proved that the great majority of apically infected teeth can be sterilized—both apical tissue and tooth.

We have proved that the canals can be so filled as to exclude the

probability of reinfection. Do not understand me to say that all apically infected teeth can be so handled. Many of them must be extracted, but the great majority can by proper treatment be indefinitely conserved and rendered entirely innocuous. The differentiation of these two classes naturally comes under "diagnosis," which is not within the scope of this paper.

This evening's entertainment must for lack of time consist solely of a description of your essayist's methods of opening and filling pulp canals, of testing periapical areas for infection, of sterilization and of retesting.

It is no longer necessary to stress the importance of filling the main or trunk canal. That is fully recognized. It is still more important, however, to stress the importance of filling the accessory canals, for each of these smaller canals, if unfilled, constitutes as great a menace to the health of the tooth and the patient as the trunk canal.

It is a fact that the very great majority of tooth roots have more than one canal and foramen, and it is my opinion that failure to fill these accessory canals and seal their foramina has been the main cause of failure with those teeth which the X-ray shows perfectly (?) filled. But, you say, it is impossible to fill these with any degree of certainty. You do not know where they are—the X-ray does not show them, and how can we fill a canal when we do not know if it is there or not? By the old chloro-percha method I grant you it is impossible, but by the methods I shall outline to-night I contend that it is not only possible, but easy, to fill any number of accessory canals of any shape, size or direction, whether you know they are there or not. I shall endeavor to prove this by X-rays of fillings made in the mouth, and slides of decalcified teeth filled out of the mouth.

Before going into this part of the paper, however, let us get straight on some of the principles upon which we cannot rely for accomplishing this purpose. The oldest method upon which we have pinned our faith and been totally disappointed, is that involving force. It is a physical impossibility to fill these minute canaliculi by force without exerting such a great amount that it would split the tooth. This method also assures us of too great an excess of filling material beyond the foramen.

Next Dr. Callahan brought out his method which we might say involves "persuasion." This is the most effective method evolved up to date for filling the trunk canal, but it is entirely futile for the accessory canals, except with certain modifications which will be outlined later.

Next Dr. Howe of Boston brought out his method of filling by capillary attraction, but by a long series of experiments I finally succeeded in proving what anyone should know after a moment's thought—that capillary attraction does not exist in the canal of a tooth in the

mouth. The smallest ends of the capillaries are closed by the periapical tissues, and it is a well known fact that when the end of a capillary is sealed, even by placing therein the most minute quantity of water or other substance, the entire attractive force of the capillary is neutralized. I do not contend that Dr. Howe's solutions do not penetrate the canals, canaliculi and tubuli, but they do not do it by capillary attraction, but rather by diffusion—and at that it does not seal any of them.

How may we render these minute canaliculi receptive to our filling materials? By man-made methods, or by utilizing the forces of Nature? Man's chief problem here on earth is to discover and utilize the laws created by God, whether pertaining to physical, mental or spiritual affairs. "The Law of Nature," so called, is but one diversion of God's laws, and the most successful practitioner of the healing and restorative arts is the one who can most fully utilize the forces and laws created by an all-wise and loving Creator, just as the most successful individual life is that which is controlled by the mental and spiritual laws of its divine Maker. Nature has stored away in each pulp canal a force exactly sufficient to fill it perfectly, if we can perfectly utilize that force. This force is known as "The Law of the Diffusion of Liquids"; which is in effect, that two or more liquids capable of being mixed will, when placed together, effect a spontaneous exchange of molecules, even in defiance of the law of gravity, until each has become perfectly diffused throughout the other.

How may we best utilize this law in the filling of pulp canals? I do not know the best way—that is yet to be found, I think; but I do know one way which has in my hands given good results. This is by certain additions and modifications to the "Callahan Method," which will in the hands of a careful operator give results which we have not heretofore considered possible.

Briefly stated, the Callahan method consists of the use of dilute sulphuric acid as a decalcifying medium to assist in opening the canals, followed by a saturated solution of sodium bicarbonate, causing a rapid effervescence which effectively clears out all debris. The acid is also a powerful though superficial germicide. After dehydration by alcohol the canal is flooded with a solution of chloroform. A point of pure base-plate gutta-percha, only slightly smaller in diameter, but longer than the canal, is then selected, passed into the canal and caused to dissolve in the chloroform by a rapid though delicate pumping or stirring motion. We will now take up this technique at the first step after the tooth has been prepared for treatment, and follow it through step by step in the proper sequence. The first and most important thing is to cleanse as thoroughly as possible the trunk and accessory canals of all organic material, and leave them clear so that they can be properly and perfectly filled in the last step of this technique.

For this purpose a 30 to 40% aqueous solution of the chemically pure acid is used. It softens the wall of the canal by a process of decalcification so as to permit easy and fairly rapid enlargement of the calibre by curretting with various instruments. A valuable factor in the use of the acid is that it may safely remain in the tooth long enough to permit of its diffusion through accessory canals which cannot be reached with any instrument and can be treated only by grace of the law of diffusion of liquids. It must always be borne in mind that our only real problem is to fill these accessory canals and seal their foramina. By diffusion, the sulphuric acid will penetrate these more safely than any other chemical now at our disposal. It is far from being as effective in dissolving the organic content of these canaliculi as we would like, but so far the factor of safety to the patient has prevented the sealing in of any more effective solvent; for, bear in mind, that these canaliculi can be reached only by diffusion, which requires time. The organic matter in the canals and canaliculi is attacked to a marked degree, caused to yield up its water, shrink, and release its hold upon the tube wall. The effervescence caused by the addition of the soda will then break up the organic matter and remove it cleanly from the larger canals and to a considerable extent from the smaller canaliculi. But although the organic matter may not be perfectly removed from these, part of that remaining is forced out of the foramina into the tissues, where it is promptly digested, and the remainder encapsulated in the filling.

The advantages of the dilute sulphuric acid then appear to be as follows:

(1) It permits of the rapid and perfect cleansing and enlarging of the main canal.

(2) Its marked affinity for water causes its rapid diffusion through all the accessory canals where its well-known oxidizing properties have a burning or charring effect upon dead tissue.

(3) The addition of soda produces such a violent effervescence that not only this debris but frequently even broken instrument points will be forced out of it.

(4) Last, but by no means least, it may be safely sealed in the difficult canal (one plugged with debris or occluded by pulp stones), which will allow ample time for this diffusion to a limited depth through all canals and canaliculi, enlarging them by a self-limiting decalcification and cleaning and sterilizing by oxidation.

What about the possibility of pumping some of this sulphuric acid through the foramen? With reasonable care this result would be the very great exception; for, bear in mind, that any liquid you place in the empty main canal does not go ahead of the instrument, but follows it, and you are much more liable to get a laceration of the periapical

tissue from your instrument point than an irritation from the acid. In a root having a large foramen you have only slight need for the acid, and it, like any other similar agent, must be cautiously and sparingly used in this type canal. It should not and need not be sealed in a canal of this kind.

TECHNIQUE AND INSTRUMENTATION.

After the canal has been freed of pulp tissue or old filling, the crown of the tooth is coated with cavity varnish, sandarac, or chloro-resin, the pulp chamber flooded with 30 to 40% acid and the canal entered with a fine or extra fine Kerr pulp canal file. This is gently passed in until it hangs. It is then given about $\frac{1}{8}$ twist, held in that position and withdrawn. This is repeated, pumping the acid in thoroughly until the instrument and acid have penetrated to about the apical third or gone so far as the file will easily go. The next smaller size file is then used and the opening and pumping continued slightly farther. Measuring wires may be used at this point if desired. No instrument larger than the finest smooth broach, or pathfinder, should ever be passed through the foramen if it can be avoided. In the majority of cases it is easy to tell when you are about to enter the foramen, as there is a slight constriction just short of the actual opening. The acid should be thoroughly pumped to this point and neither acid nor instrument carried any farther. It is difficult to coax the acid to this point and there is small danger of getting it any farther except, of course, in the very large canals. The acid is neutralized at frequent intervals, removing the debris, and just before sealing the cavity and dismissing the patient, fresh acid is pumped into the canal, the surplus absorbed out of the pulp chamber, a pellet of sterile cotton placed in, and the cavity sealed with cement or hot temporary stopping without pressure. This may be left in for any length of time that may be desired or necessary, as acid is self-limiting in its action, and due to the alkalinity of the lime salts of the dentin, does not remain active for more than two or three hours.

If the canal in which you are working is not perfectly straight and the Kerr file hangs at some point, or suddenly fails to penetrate farther, remove it from the canal, and with the radiogram as a guide, bend the point of the file slightly, reintroduce into the canal, and probe for the opening into the remainder of the canal. The very great majority of the canals can be freely and easily opened if we can bend our file to approximate the curve of the canal. Force plays no part in the opening of a pulp canal, it must be done by "persuasion." There must be no effort to "jimmy" the canal open. It is already open in 49 out of 50 cases, if you will but probe until you find it.

Let us study for a few moments just what the acid does while it is in the canal and how it does it. In a pulpless tooth all of the canals and canaliculi are as a rule filled with decomposed organic matter in

aqueous solution. That can be removed from the main canal by absorption, but it cannot be so removed from the fine accessory canals. When the main canal is flooded with the acid, then the law of the diffusion of liquids comes to our help, and as the 60% of water contained in the acid solution is not sufficient to satisfy the acid, it takes up more water from whatever source it can gather it. Placed in the tooth, its only available supply is contained in the accessory canals, and to some extent in the tubuli. It can gather but little from the tubuli, however, because of its farther penetration. It must therefore act upon the watery content of the accessory canals, which it promptly does. The water in these canals is drawn into the acid and the acid flows back into the canals. In other words, sufficient of the water and the acid change places to produce a balancing of the solution. Does any of this acid diffuse into the tissues beyond the foramen? Not unless the apical tissue has been broken down and replaced with cystic fluid. Its action in coagulating albumin will not permit it to actually enter living tissues. There again it is self-limiting.

Subsequent application of fresh acid followed by the soda will result in the complete removal of all organic material from all of these canals excepting those exceedingly small and quite longer than the average.

FILLING THE CANALICULI BY DIFFUSION.

When we have finished with our acid and neutralized it for the last time, our canaliculi are filled with water, holding many chemical compounds in solution. The water effectively bars the entrance of chloro-resin solution, so we must substitute something else for this water; something which has an affinity for chloroform. Alcohol is ideal for this purpose. The main canal is then flooded with 95% alcohol, which is thoroughly pumped and churned into it. By diffusion this substitutes for the water in the canaliculi, filling them with a lower grade alcohol. Ample time must be allowed for this, for if the canaliculi contain less than 85% alcohol, the chloro-resin will not diffuse through it. This usually requires from one to three minutes. All of the alcohol which can be removed with absorbent points is then taken out and the pulp chamber and canal flooded with the chloro-resin. No pulp canal driers or hot air must be used at this stage, for we wish the canaliculi to remain filled with alcohol. The chloroform diffuses perfectly and rapidly into the alcohol, and inasmuch as the resin is in perfect solution in the chloroform, wherever the chloroform goes the resin goes. Time is required here also. Allow from two to three minutes, pumping in fresh chloro-resin as the chloroform is soaked up by the tubuli and canaliculi or passes off by evaporation. Toward the end of this period, when the solution in the canal begins to get rather heavy, add pure

chloroform as needed to keep it sufficiently thin to dissolve the gutta-percha point.

When this third substitution or diffusion is complete, a gutta-percha point of suitable size and shape is then passed into the canal and is dissolved by either a pumping or stirring movement, the movement used being governed by the size of the foramen. With a normal, small foramen a very gentle pumping is best; with a large foramen this might force too much chloro-percha through, therefore, a stirring movement is used.

Just how beautifully the gutta-percha will diffuse through the chloroform will be shown by the slides of decalcified teeth and the radiograms of teeth filled in the mouth.

We are told, and correctly, I think, that chloro-percha in hardening shrinks from the periphery. In other words, it releases the walls of its container. And we are also told that chloro-resin-percha in hardening shrinks from the centre, and clings to the wall of this container by virtue of the strong adhesion of the resin and the fact that tiny threads of this material actually enter the tubuli. An excellent way to assist this central shrinkage and peripheral adhesion is as follows: After the filling has been sufficiently condensed with the canal pluggers, select your finest plugger, and by passing it down through the centre of the filling for about one-third to one-half the length of the canal, entirely break up the central cohesion. It is impossible to prevent the shrinkage of gutta-percha, but we can control it.

The pulp chamber should then be quickly filled with cement, so as to prevent external evaporation of the chloroform, for if the chloroform is permitted to evaporate externally, even the above precaution will not prevent peripheral shrinkage.

Nothing has been said so far about the effectiveness of the resin in filling the tubuli. Chloroform is one of the most penetrating liquids we have, and it not only quickly penetrates the tubuli, but the interprismatic spaces between the enamel rods as well. This can be easily proved. Dehydrate an extracted tooth, allowing it to dry out naturally or by a protracted immersion in alcohol or acetone, soak it for several hours in heavy chloro-resin solution, then dry and try to break the enamel with a chisel or by grinding with a coarse stone. An old tooth which has been dried out for years, and the enamel of which is as brittle as glass, can be made as tough as a fresh tooth in a very few hours by this simple process. This is an excellent way to treat your technique teeth so as to prevent the chipping off of the enamel while you are preparing them for various uses, and also to prevent their cracking and checking in after years.

Of course, if this solution will carry sufficient resin into the interprismatic spaces to have this effect on old, dried-out teeth, there can be

no argument about it carrying sufficient resin into the infinitely larger tubuli to effectively obliterate them and encapsulate in its dense solid substance any bacteria they contain. Even grant (as some contend) that the resin is not a germicide or antiseptic, a bacterium encapsulated in it is entirely harmless. Only the finest grade "Water white" resin should be used. "Fiddle bow" resin is the third grade; "Water white" is the first.

TECHNIQUE AND RESULTS OF ELECTROLYTIC MEDICATION IN PERIAPICAL INFECTION.

Immediately upon entering into the specialty of pulp canal treatment and filling some years ago, I took up the practice of ionization or, as it is more properly called, electrolytic medication. From all the information I could obtain at that time, the most approved technique seemed to be that calling for fifteen minutes' ionization, giving one-half to one milliampere empirically for several years. At that time no one seemed to know exactly why fifteen minutes should be the limit for the flow of the current, nor the exact reason for the amount of amperage, or exactly what results could be expected from the treatment, except that it was supposed to have more or less sterilizing effect upon tissue. Clinical results obtained by this technique were, in many cases, decidedly beneficial, but failing utterly to obtain much definite information upon the points just outlined, the writer pursued independent investigation and has finally acquired sufficient exact information concerning this treatment to convince him that with a new technique and solution it is the most effective at the present time for sterilizing both tooth structure and periapical tissue.

Bacteriological experiments were conducted, using a large number of different solutions over various periods of time and with definite strength of current. My experiments with the first two solutions in common use, namely, zinc chloride and sodium chloride, have proven them entirely unsatisfactory from the standpoint of tissue sterilization. A 3% solution of iodine recommended by some practitioners of note was tried with equally unsatisfactory results except that they convinced me that iodine was the proper element for accomplishing the desired purpose. Various solutions of iodine were then tried, with results which strongly indicated that the more free iodine the solution contains the more effective it is as a germicide, as only the free iodine is properly available for ionic migration. In addition to the strength of iodine contained in the solution, the amount of electrolytic action permitted by the solution also entered strongly into the question. The solution I finally decided upon as being the most effective from every standpoint is that known as Churchill's tincture of iodine. This solution contains 16½% of free iodine and is also a splendid electrolyte, ranking very slightly below physiologic salt solution in that particular.

Immediately upon adopting this solution, my results were revolutionized. I found it possible to accomplish results hardly dreamed of before. Many laboratory experiments were made with it, but I shall describe only the one series which most closely approximated clinical conditions. It is my opinion that the very great majority of laboratory experiments with this form of medication are inconclusive and bear little, if any, relation to the clinical conditions, and are therefore interesting only as laboratory experiments. In our experiments, the more closely we can simulate clinical conditions, the more conclusive our results will be. I do not say that laboratory experiment is useless, but it must always be interpreted purely as such and not given an equal value with clinical results. After all, the only result of real importance and significance is the clinical result.

The first series of experiments closely approximating clinical conditions consisted of obtaining fresh extracted teeth which had come out with the granuloma intact on the root ends. The specimen was immediately sent to the bacteriologist, cultures taken from the canal and from the granuloma, returning it immediately to me. I then put a wax collar around the gingival portion of the tooth, immersed the root portion in a tube containing Ringer's solution and having an electrode embedded through the glass bottom of the tube. The canal was then opened and cleaned out mechanically, the electrolyte pumped into the canal until contact was obtained with the granulomatous tissue, a platinum electrode passed into the canal, electrical connection made and the desired flow of current passed through it. Immediately upon completion of this treatment, the tooth was returned in the tube to the bacteriologist, who removed it, picked off the granuloma, macerated it, chipped off the apical third of the root, pulverized that, and both specimens were cultured. I think you will agree that this method very closely approximates the clinical. After a considerable number of such experiments, I found that if I used Churchill's tincture of iodine, giving one-half of one milliamperere of current and continuing it for thirty minutes, I could sterilize the entire tooth structure and the largest granuloma I had obtained.

After adopting this technique my cultures were uniformly negative. Next, in order to test this treatment under absolute clinical conditions, I began to aspirate the apical fluids before and after treatment and culture them. The technique is as follows: After the canal has been cleaned out and enlarged (if necessary) the end of a platinum-tipped glass tube is sealed in the pulp chamber by means of temporary stopping, and a powerful vacuum created and continued for five to fifteen minutes, depending upon the size of the foramen. An Elgin casting machine* is used to create the vacuum. Sterile cotton pellets and points are then

* For the suggestion of the Elgin machine I am indebted to Dr. Crane.

used to absorb the extracted fluids and cultures placed in both solid and liquid media. The tooth is then ionized, using Churchill's tincture with one-half milliamperes per canal for thirty minutes. The canals are then very thoroughly washed with 95% alcohol to remove every possible trace of iodine. This is followed with an equally thorough washing of distilled water which is dried out from the canals with sterile pellets and points. The vacuum is then again applied and the effort made to obtain as much of the apical fluids as possible. This is also cultured in both liquid and solid media. It will be readily understood that by this method it is possible to draw fluids from a considerable area around the apex, which removes the objection that our treatment might have produced a simple surface sterilization.

This is, to my mind, the most conclusive test possible, and I am glad to be able to report that results obtained have been entirely satisfactory. One hundred such tests were made; the results were uniformly negative except where the specimens had been contaminated. Each contamination case was checked up again more carefully and proved negative. These were not selected cases but ordinary run of practice cases which were considered worthy of treatment. When a deep pyorrhea pocket existed by the root under treatment, I found the cultures, after treatment, usually showed a growth. I attribute this to the presence of the pocket and believe that the infection is drawn by the vacuum through the lymphatics draining the pocket area. I have therefore arrived at the conclusion that it is inadvisable to treat apically infected teeth which bear a pocket as deep as half the root length. This conclusion has been greatly strengthened by the report of Hartzell to the effect that a large percentage of deep pocket permits of too ready access of bacteria to the apical region.

As to clinical results and case histories, I shall endeavor also to be brief and at the same time give enough to indicate what can be accomplished. In addition to the 100 cases just mentioned, I have records of approximately 400 pus cases, that is, cases from which there was an active flow of pus, either through a sinus or through the root canal, which were cultured as previously stated and filled at one sitting with no treatment whatever except to simply absorb all of the available pus and ionize. All of these cases except eight responded promptly to the treatment. Where a sinus had been created on the gum, that closed and healed promptly and within twenty-four to forty-eight hours after the filling; and where drainage had been established through the root canal, that was immediately closed by the filling. Three of the eight cases referred to were, after careful examination, considered worthy of another attempt and so were ionized and filled a second time with satisfactory results. Of the five remaining, which did not respond to the treatment, the roots of one were found to penetrate the antrum and

the other four bore marked evidence of resorption and roughening of the apical cementum which was not detected by the radiograph.

Being emboldened by these results, some few months ago I determined to try the same treatment on an acute periapical abscess. This case was in its most acute form, being intensely sore to percussion, with slight redness and swelling, but no formation of pus. In other words, the infection about the apex was in its most virulent stage. At one sitting the tooth was opened, ionized and filled, and results anxiously awaited. This was done about nine o'clock in the morning, and by four in the afternoon the pain had almost entirely subsided. The patient slept comfortably that night. The following morning the swelling and redness had disappeared and only a slight sensitiveness to percussion remained. This entirely disappeared within the next twenty-four hours. The abscess was entirely aborted by one treatment. Since that time I have been fortunate enough to get fourteen additional cases in exactly this same stage and each of them has responded in an identical manner. In my opinion this is the most severe test of this method which could be imposed upon it. It is true that fifteen cases are not very many, but it seems safe to say that if it can be done in fifteen consecutive cases, it can be done in a great many others. My personal belief is that with this technique carefully carried out this result will be obtained in practically every case, as it leaves little, if any, infection to be cared for by the patient's resistance.

The technique of administering this treatment is very simple. After the canals have been thoroughly cleaned and prepared for the reception of the filling, they are then dried out with absorbent points, the Churchill's tincture pumped into them until we are sure it is in contact with the apical tissue, the electrode passed in and the negative pole attached to the electrode, the positive pole placed inside the cheek, or lip, and the proper current slowly turned on. For one canal we give one-half of one milliampere and for each additional canal, ionized simultaneously, an added half milliampere. For three canals of a molar this would give us a total strength of current of one and one-half milliamperes. If our canals have been properly cleared, the solution gotten in absolute contact with the apical tissue and our electrode in the proper position in the canal, there will be very little resistance to the current and very little pain produced. If the resistance is high, discontinue the ionization, trace the trouble and remove it.

The electrode may be of any desired metal, but we have found 30 gauge iridio-platinum wire best for this purpose. These wires must be flattened and pointed to permit the circulation of the solution by diffusion. As a rule it is necessary to replace the solution each ten minutes of ionization. Of course, if the pulp chamber is very large and a great quantity of the solution can be contained in it, only one

or even no replacement may be needed. It is also important that after each replacement, the fresh solution be thoroughly pumped and churned into the canals. This can best be done with the electrode wire which is in the tooth. The tooth electrode must be permitted to pass through the canal; neither must it be farther than three-sixteenths of an inch from the apex. The first condition would produce a short circuit and no iodine would be conveyed, and the second would give such a high current resistance that much pain might be produced and certainly little iodine would be conveyed.

Slides shown by Dr. Johnston followed his lecture.

Upon question from Dr. Lougheed, how he obtained tissue from the live mouth to send to the laboratory, Dr. Johnston replied: by sucking fluid from the apical ends with a strong vacuum pump.

Mal-occlusion as Related to General Health

MARTIN DEWEY, D.D.S., M.D., *New York City.*

Broadcasted April 9th, 1925, under auspices of the Southwestern Society of Orthodontists, Station KFRU.

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THE most valued asset of a nation is the health of its people. It is important that everyone should do all they can to conserve their health. It is very imperative that the parents should use special care to conserve the health of their children.

In the study of health, we find that no one thing has been so responsible for the life of the people as have the teeth. We find in the study of animal life that the teeth are the most used of all organs. Various forms of anatomical structures are present in different animals, but they present many variations and uses. However, the teeth are always found to be present, regardless of the other habits or nature of the animal. In man, the teeth have played a very important part in the development of the human family, and are important factors in the health of the race to-day.

The teeth were brought into function, primarily, for the purpose of securing and masticating the food. This may seem but a small and significant statement from a health standpoint, but when we remember that good health and, in fact, life itself, depends upon our food, we may realize that the proper function of the teeth plays a great role in the health of a nation.

In order for the teeth to be of the most use in preparing and securing the food, so it can be assimilated by the body, the teeth must occupy a proper position in the jaws, the proper relation to each other, and also occupy the proper position to the face and cranium. We have often

seen faces that were beautiful, and others that were not pleasing, but it must be remembered, in the study of beautiful faces which are pleasing and attractive, that the teeth as a whole contribute more to the beauty of form than does any other part of the face. Some people are inclined to believe that the eyes are the greatest objects of beauty, but it must be remembered that it is only when we have the proper development and contour of the face that the eyes become attractive, and the shape of the face depends upon the form and position of the teeth. Malpositions of the teeth do much towards marring the beauty of the face, as unpleasing and inharmonious as some faces may be. It must be remembered that lack of beauty is only a minor factor when we consider the great harm which the individual with malposed teeth suffers as a result of the inability to properly masticate the food. The improper mastication of the food, associated with malocclusions, opens up a chain of circumstances which have a far-reaching and disastrous result. Very often we have children brought to us for treatment because of some slight variation in the position of one tooth, and the fond parents insist upon the correction of this deformity for the sake of beauty; but the more serious condition produced by the malocclusion of the teeth and the effects on the constitution of the individual are overlooked, and the parent is somewhat surprised when we insist upon the treatment of the deformity as a health measure.

Malocclusion of the teeth is a scientific term used to denote the variations in the position of the teeth to such an extent as to interfere with the functions. It must be remembered that any deviation from the normal is going to interfere, not only with the function, but that disturbance will also result in an abnormal development of the parts, which, in turn, will also have an ill effect upon the health.

Malocclusions of the teeth are very common, and are on the increase. This increase is due to the fact that the people are not eating the proper food, and, consequently, the teeth, and their supporting structures, do not receive the correct use and stimulation, which has an added evil effect, because the food, also, is deficient in nutrition, and, consequently, the individual suffers from malnourishment. Malnourishment, or malnutrition, again interferes with the growth and development of the individual, which means we have a child below par, and the malocclusion has been one of the primary factors in this vicious chain of circumstances, and malocclusion will continue to be a handicap during the entire life of the individual, unless the deformity is corrected. We have already mentioned that improper food, lack of use, and malnutrition result in the abnormal development, or, rather, lack of development of the supporting structures of the teeth, which may be described as the bones forming the face. We, therefore, find that these individuals do not masticate properly, and another serious condi-

tion occurs, because the disturbance of the teeth and their associate structures has an effect upon the development of the nasal cavities. As a result of this disturbance of the nose, the individual becomes a mouth-breather. It is a well-known fact that people who cannot breathe through their nose are more prone to contract all kinds of infectious diseases than the individual who is a normal breather. A great many of these nasal disturbances can only be corrected when the malocclusions of the teeth are taken care of.

Malocclusion of the teeth is one of the greatest contributing factors to ill-health, because so many conditions occur that are so closely and intimately related to each other. Malocclusion of teeth is the most common cause of pyorrhea, which disease is characterized by loosening of the teeth and a flow of pus from around the teeth. This disease in itself makes mastication of the food impossible, and what food the patient does eat is constantly mixed with pus and germs from around the teeth. The patient, therefore, suffers not only from the original condition of malocclusion, but he is now a victim of being poisoned by the by-products of the disease, and the chain of symptoms can only be eliminated by going back and treating the original malocclusion. It is universally recognized by the medical profession that many serious diseases have their original cause in focal infection, which may be described as a collection of germs in the bone which surrounds the root of the tooth. These foci of infection are always the result of decay of the teeth, and a large part of tooth decay is primarily caused by malpositions of the teeth, because the individual suffering from malocclusion cannot properly brush the teeth. One of the greatest measures for the elimination of focal infection and the results of that condition is the correction of malocclusion, thereby removing the primary cause of the pathological condition.

Malocclusions of the teeth contribute more to the ill-health of the human family than any other one factor. The deformity has so many ill effects and contributes so much as a causative factor in the development of systemic conditions, which, at first, may seem harmless, but later become very serious. Deformities of the teeth and jaws make their appearance early in the life of the child only as a small variation, but they continue to become worse as the individual grows older, and each year the evil effects become more noticeable and they produce greater harm in the production of ill-health. Malocclusions should be corrected as soon as they are discovered, and the parent who wishes to do the greatest good for the child, will see that the youngster receives the proper orthodontic treatment as soon as any deviation from the normal is observed. If the child is given the proper attention, the correction of the malocclusion will result, and the child will develop a normal and beautiful face, and the improvement of the general health, which will have the effect of producing a long and happy life.

Canadian Dental Association 1926 Meeting



THE forthcoming C.D.A. meeting, to be held at Halifax in 1926, is being looked forward to by our progressive New Brunswick practitioners with pleasurable anticipation.

As the C.D.A. cannot be a local function, certain duties can be carried out by practitioners in other provinces than Nova Scotia, though the burden will necessarily be borne chiefly by President Thomson's confreres in Halifax.

Halifax will be found one of the best centres in Canada for the Convention, and New Brunswick Dentists will support their Nova Scotia confreres in every way. Though many of us know Halifax fairly well, there still are an untold wealth of historic places to be visited, and charming scenery which, no matter how many times we view it, is ever fresh and satisfying.

For those who style themselves patriotic citizens, the study of their own Dominion is a duty, the neglect of which is indefensible. While the Pacific Province is a lusty young giant, we promise every one west of New Brunswick a great time when they come to visit our stately old Halifax.

Naturally, Saint John and Moncton will want you to visit them, and, as you have to pass through both cities, you will have difficulty in escaping our hospitality.

Some of the beauties of New Brunswick scenery will, in part, be realized by those from Montreal and beyond, who route their transportation via the *Transcontinental and Valley Railway*. They will see scenery on the Saint John River unsurpassed (if even equalled) anywhere in the world, while at Saint John City they will be enabled to witness the phenomenon of a reversing rapids; two times a day water running up river and two times a day water running down river, a feature of nature known nowhere else in the world. Then, at Moncton, a stopover will enable you to witness the "Bore," which is a mass of water, its size and volume dependent on the height of the Bay of Fundy tide at the time. This, also, is unknown anywhere else in the world, except in China. We cannot promise to show you the tearing away from its moorings of a schooner unloading at a wharf (this has occurred and the vessel wrecked farther up the Petitcodiac River), but we can show you an unusual sight. COME!

J. M. MAGEE.

The real secret of power is to be ready for emergencies before they occur.

Modern Periodontal Nomenclature

BY JOHN OPPIE MCCALL, D.D.S., F.A.A.P., F.A.C.D.,
NEW YORK CITY.



THE study of diseases of the supporting structures of the teeth has been carried on for many years. And until recent years this study has been productive of little in the field of accomplishment. Much has been written about these diseases, and more has been said. And, as a necessary medium for the expression of such ideas as have been evolved, terms have been coined which were intended to convey more or less definite concepts. Since these terms could only reflect the knowledge of the subject which was extant at the time of their use, and since knowledge in this field has been constantly advancing, it has been found necessary to revise nomenclature in the field of these diseases at somewhat frequent intervals. Particularly is this true of the past fifteen years.

It is a strange thing that investigators for so many years failed to understand the fundamental fact that these diseases produced a basic involvement of more than one tissue. There has accordingly been no agreement until recent years as to a name which would indicate clearly the site, if not the nature, of these disorders. For instance, we have a tissue within the tooth called the dental pulp. The name was given to this tissue many years ago, and is still considered to be applicable to this tissue. We therefore have Pulpitis as a definite term, universally accepted as a designation for inflammation of the pulp. Our knowledge of Pulpitis may be enlarged as time goes on, but inflammatory disease of this tissue will still be properly termed Pulpitis.

When we consider the diseases of the supporting structures of the teeth we find that while these tissues have been named individually, and these names seem suitable, there has been a sharp diversity of opinion in naming the diseases situated in these tissues. That there has also been a diversity of opinion as to the nature of these diseases has further complicated the question of nomenclature. Investigators have varied in this regard from atrophy to inflammation. We thus have had Interstitial Gingivitis, Suppurative Pericementitis, Alveolitis, each proposed as the basic disease of the syndrome. In addition to this we have had Pyorrhea Alveolaris, Precocious Senile Atrophy, and a host of others.

Each of these terms has been proposed with the conviction of its originator that it expressed essential and true ideas about these diseases. And as new ideas have been developed, new terms were necessarily devised to express these ideas. For lack of fundamental work in this field, this constant coinage of new terms has gone on all too rapidly.

The dental profession is to be congratulated that the time has at last come when the fundamental knowledge on this subject seems now to have been attained. There is much yet to be learned regarding details, but the foundation has been laid and seems unlikely to be disturbed. I need hardly tell this audience that the man who is chiefly responsible for this happy state of affairs is Harold Keith Box.

Eleven years ago, a small group of dentists, who termed themselves Pyorrhea Specialists, formed an organization of international scope, for the purpose of studying these diseases. Recognizing the unsuitability of the term Pyorrhea Alveolaris, as well as other terms in use at that time, they endeavored to incorporate in the name of their society a term which would more nearly approach the ultimate goal of nomenclature in this field. They recognized at that time the fact that what we now call periodontal disease, involved not one, but all three, of the supporting structures of the teeth. At the first meeting of this Society, I proposed the term "Periodontolysis" as a basic term to designate diseases affecting the three supporting structures of the teeth. Previous to this, Dr. McDonagh had suggested the term Alveolar-osteoclasia. On conferring over this situation, I objected to the latter term as being too limited, since it applied only to disease of the alveolar bone. Dr. McDonagh asserted that while this might be true, the disease process was one of breaking down rather than of dissolution, and that the suffix "clasia" was more suitable than the suffix "lysis". A compromise was therefore agreed upon in the shape of the term "Periodontoclasia". The newly-formed Society was therefore called "The American Academy of Periodontology" and its members called themselves "Periodontists".

The suitability of this term appealed to nearly all students of this disease, and it accordingly made rapid progress in the literature of our profession. It was at first used to describe what we now recognize as that type and stage of disease characterized by the formation of a pus pocket, loosening of the tooth and marked inflammatory symptoms; in other words, what had been previously and inaccurately described as a typical case of pyorrhea.

With this as a basis, and with the advances made possible by the meetings of The Academy of Periodontology, investigation of types of periodontal disease which did not exhibit the above symptoms, made greater headway. The relationship between gingivitis, recession of the gum margin and other disturbances of these tissues, became increasingly apparent. It seemed clear that there were several fairly distinct types of disease all falling under this one general heading. It appeared to be necessary, therefore, that the term periodontoclasia should be utilized as a fundamental term, applicable to any of the types of

periodontal disease, whether occurring singly or in fusion. It then became desirable that a different term be applied to that type of disease characterized chiefly by the formation of a pus pocket. To designate this type, I devised the term "pericementoclasia", meaning a breaking down of the pericementum.

In addition to the types to which reference has already been made, I further described a type of disease which had previously received no special notice. This was a disease characterized by slight mobility of the tooth, without pocket formation, gingival inflammation or pus. This type I called "alveoloclasia", since it was evident that its chief characteristic was loss of alveolar bone. With this and a more particular differentiation of abscess formations around the tooth root, we seemed to have a fairly complete classification of the types of periodontal disease.

These terms were first reported to The American Academy of Periodontology by the Committee on Nomenclature, of which I was chairman, and adopted by that organization. Later, Stillman and I included these terms in a book devoted to the subject of periodontal disease.*

At about this time, writers on allied subjects began to use the term periodontal membrane as a synonym for pericementum. This was evidently an effort at modernizing Black's term, "peridental membrane". It brought, however, nothing but confusion. While it was probably true that the early anatomist who coined the term "periodontium" had in mind the pericementum or peridental membrane, this term was evidently not acceptable to Black, who must have been cognizant that such a word was in existence. Recognizing this situation, the periodontist, being confronted with the need for a group term by which to designate the three associated structures around the teeth, preferred to broaden the application of a term already in existence, but which had become somewhat obsolete and was also but vaguely defined, rather than coin a new term which must inevitably be less suitable.

But to return to the term periodontoclasia. It was officially sanctioned by the Committee on Nomenclature of the American Dental Association. And it therefore seemed to be well established in the literature of the profession. There remained, however, the evident failure on the part of many periodontists and most of the profession at large to make a distinction as to whether periodontoclasia should be taken as a fundamental term inclusive of all types of periodontal disease, or whether it was to be limited to one type, that characterized by pus pocket formation. At a time when this situation was causing some concern to those who were especially interested in nomencla-

* Text Book of Clinical Periodontia. Macmillan & Co., New York: (Stillman and McCall).

ture, Box brought out his epoch-making work on periodontal pathology. At first sight it appeared to many of us that he had added complications to a situation which was just beginning to be retrieved from a state of chaos. But further study of his work has indicated that it actually clarifies and simplifies, as all truth must.

While it is possible to correlate and establish a parallel between the types of disease which I have previously called "Ulatrophia" and "Alveoloclasia", with certain manifestations which Box had described as originating in Rarefying Pericementitis Fibrosa, and the use of these terms might still be considered acceptable, the interests of accuracy will undoubtedly be best served by accepting his classification. The same may be said of the term "pericementoclasia". In favor of the former terms, it might be urged that they represented stages of disease easily recognized and differentiated by clinical examination. Since, however, these terms do not definitely call attention to the underlying pathological conditions, and since misinterpretation is liable to occur, it seems best to discard these terms in favor of designations whose significance is unescapable.

In this connection it might be interesting to note, that Stillman and I have for years been endeavoring to impress upon the dental profession the causal relationship between traumatic occlusion and what we have termed Ulatrophia, Alveoloclasia and certain types of Gingivitis. It has remained for Box to definitely establish this relationship. For, while he does not claim to have established the complete picture of the etiology of periodontal disease, his work, nevertheless, indicates clearly the important part which traumatic occlusion plays in the etiologic complex. What we have previously seen as more or less distinct clinical pictures, Box has shown to be but varying manifestations of one pathologic condition. In other words, when rarefying pericementitis fibrosa occurs, we find resorption of alveolar bone, recession of the marginal gingiva or gingival congestion, or some combination of these three conditions. Stillman and I have recognized their relationship to each other and their significance as early lesions in a progression tending to terminate in pocket formation and the loss of the tooth. Having, however, no histopathologic evidence with which we might validate our claims, our teaching in this branch of periodontology has failed to carry conviction to those not already familiar with this subject. Here the work of Box is invaluable.

But this is not all. His work has simplified the problem of nomenclature, because it substitutes one term for two. Gingivitis we must of course retain, chiefly because it may occur as a simple inflammation uncomplicated by changes in the deeper structures. It is a little unfortunate that the term rarefying pericementitis fibrosa is so lengthy, al-

though its suitability as a descriptive term cannot be questioned. It serves, however, to give a satisfactory explanation of such clinical manifestations of disease as recession, mobility, gingival clefts, festoons, asymmetric inflammations of the gingiva, etc. No one in the future can intelligently and correctly discuss periodontal disease without using this term.

I have already said that it would be best from the standpoint of accuracy, and also from the standpoint of the avoidance of confusion, to discontinue the use of the term periodontoclasia. As a substitute for this, Box has given us periodontitis, an inflammation of the periodontium. Since he has shown us what we did not before know, viz: that virtually all types of periodontal disease are inflammatory in character, even in their earliest stages, we need no longer hesitate to use the suffix "itis" in connection with these diseases.

Box has furthermore proposed a differentiation between what he calls chronic periodontitis simplex and chronic periodontitis complex. While I recognized from the outset the suitability of these terms, and recognized the clinical types to which he applied them, I will confess that I was for some time of the opinion that their use would introduce a complication which would confuse many students. I have, however, found during this past year, in presenting this subject to undergraduates, that it was actually necessary to teach these divisions of periodontitis in order to adequately explain the methods of treatment. In other words, in outlining the treatment of periodontal disease, in whatever stage it might be encountered, it was necessary to advise the relief of traumatic occlusion wherever found. Since I had already taught that this force was a primary cause of periodontal disease, the natural query which was frequently put to me was: "Why do we have periodontal disease in cases in which the teeth are incapable of being brought into occlusal contact?" The only satisfactory explanation was, of course, that lack of function, as well as excessive function, was a primary cause of disease. This fact, in addition to the obvious dissimilarity of the non-occlusion case, as contrasted with the traumatic occlusion case, compelled the explanation that these were really two distinct types of periodontal disease. The suitability of the divisions, "complex" and "simplex", has thus been impressed upon me through my experiences in teaching this subject.

What had at first seemed an embarrassing complication, gives promise, therefore, of working out into an actual simplification of the problem. The subject of periodontal disease has always seemed complicated, and the teaching of this subject has been correspondingly difficult. With each step by which we have approached closer to the truth, the subject has been further simplified. Truth is always simpler than near-truth. It is a universal experience in pedagogy, that when the pupil is con-

fused the explanation will be found to centre in one of two facts: either the teacher does not understand his subject, or the knowledge regarding that subject has been incompletely developed. Periodontology is no exception to this rule.

I must plead guilty to having introduced into dental literature several new terms. I have been happy in finding them acceptable to many students. I regret that I could not have known at the time of their introduction that Box's work was so soon to make them obsolete. But I should be the last one to wish for their retention in our literature, since their continued use could only be a matter of personal gratification. I refer here to the terms "Alveoloclasia" and "Pericementoclasia". With these we may include Stillman's term "Ulatrophia". With regard to Ulatrophia, however, it may be urged that a condition to which this term could be properly applied does actually occur, although it is not the type of disease to which we have ordinarily applied this word. Further study on this phase of periodontal disease is needed.

In our studies of periodontal disease, it was found desirable to make a subdivision of the gingival tissue, inasmuch as certain manifestations of disease were found to be localized in one part, while others were found in other parts. In our book we proposed the subdivisions "marginal" and "cemental" gingiva. The marginal gingiva was defined as that portion of the soft tissue which lies in contact with the enamel but which is not attached directly to the tooth surface. The cemental gingiva was defined as that portion of the investing tissue which is attached to the cementum surface, and which lies crownward of the alveolar process. These divisions have proven acceptable and have served a useful purpose.

We also proposed the term gingival crevice, as a designation for the space normally existing between the marginal gingiva and the tooth surface with which it makes contact. This term has also been largely accepted as being more suitable than terms previously in use. The adjective "crevicular" derived from it, has also proved to be a useful word.

The word "apoxesis" was proposed as a term to designate the scaling operation performed upon the root of the tooth. It means the act of making smooth. Since its introduction, Quinby, of Boston, has proposed the word "Odontexesis", signifying the scaling operation on the crown of the tooth. There was a necessity for this distinction on account of the work assigned to the dental hygienist. These terms have been found useful and have not been attacked.

Less peaceful has been the career of the term "traumatic occlusion" proposed by Stillman about ten years ago. The condition to which he applied this term was at first scouted as being a figment of the imagina-

tion and also as having no causal relationship to periodontal disease. After this relationship had forced itself upon the dental profession, because it was too true to be for long denied, the term "traumatic occlusion" came in for castigation from those who wished to deny the thing itself, but could not. In spite of attacks whose methods have even been undignified, the term has maintained itself. While not desiring to enter into a dissertation on traumatic occlusion, its consideration, from the standpoint of terminology, requires that a distinction be noted between this term and malocclusion. It has frequently been assumed by writers in this field, that malocclusion and traumatic occlusion were synonymous terms. I can only reiterate what Stillman and I have frequently said, that while malocclusion frequently gives rise to traumatic occlusion, this relationship is not a necessary and universal one. We have also called attention to the fact that traumatic occlusion frequently occurs in a mouth in which there exists no malocclusion, as this term is understood by the orthodontists. It is evident, then, that there must be a term to express the condition which we have been calling traumatic occlusion, and I maintain that the suitability of this term has not been successfully challenged.

In our book I proposed the terms Centric and Eccentric Occlusion. At about the same time that this was published, writers on prosthetic dentistry were using the term Central Occlusion, by which they evidently intended to designate the same occlusal relationship to which I gave the name Centric Occlusion. There may be no essential distinction between the words Centric and Central in this connection, but the unsuitability of the latter is demonstrated by the fact that it has no natural antonym, as has Centric. This distinction seems definitely to establish the desirability of employing the latter term.

There are three terms in use in a field very closely allied to that of periodontology, which require elucidation. They are Preventive Dentistry, Oral Hygiene, and Oral Prophylaxis. These terms found their way into dental literature more than ten years ago, at a time when the underlying causes of dental and periodontal disease were but vaguely and incompletely understood. Because of this fact, they have been used without exact definition and have frequently been discussed as though they were synonymous. This inaccurate usage has even extended to college curricula. Courses in Preventive Dentistry, Oral Hygiene, and Oral Prophylaxis are offered, one in one college and the other in another, yet all covering the same ground. To offset this situation, the proposition is sometimes heard that one of the three should be adopted and the other two discarded. Such usage, as well as the continued synonymous employment of all three, would be incorrect. The fact is that each has its place, and one which neither of the others can fill.

General Hygiene is universally accepted as embracing all those natural principles which have to do with the promotion of health. Correct diet, exercise, fresh air, sunshine, bathing, etc., all are recognized as hygienic measures. They are natural things, and things which are put into use by the individual either with or without medical advice. The analogy between General Hygiene and Oral Hygiene is obvious. We recognize the dependence of mouth health upon diet, function, sunshine, cleanliness, etc. And we recognize that these things the individual must do for himself.

Prophylaxis in the field of general medicine, means the prevention of disease, and the means for preventing disease which are recognized as prophylactic, are chiefly artificial. Under this heading we find vaccination against smallpox, typhoid, etc. The work of city and state governments in supervising water supply, sanitation and housing conditions, and medical examination of emigrants, all come under this head. Here the analogy between general and oral prophylaxis is less sharply drawn, except as to the artificial nature of the measures in use. Prophylactic treatment, prophylactic odontotomy, orthodontia, balancing of occlusion, all are preventive measures which must be carried out by the dentist.

It should be clear by this time, that the term Preventive Dentistry includes both Oral Hygiene and Oral Prophylaxis. It should be equally obvious that Preventive Dentistry is not a synonym for Oral Hygiene, nor for Oral Prophylaxis, nor is either of these terms a synonym for the other. Each has its own place and is indispensable in that place.

It is my hope that this paper may serve to clarify the thought of our profession in this field. Our profession will be judged by other professions largely through the accuracy and culture of its literature. There are too few purists writing dental literature, and such writers serve a real and useful purpose in the development of dental science.

Dominion Income Tax as Applied to Dentists



R. C. F. ELLIOTT, Solicitor, Income Tax Branch, Department of Customs and Excise, Ottawa, has kindly revised the following statement as of the 2nd of June, 1925:

Section (4) of the Income War Tax Act of 1917 renders liable to taxation all persons resident in Canada or carrying on business in Canada. Consequently, individuals engaged in the practice of Dentistry must procure, on their own volition, income tax forms known as T 1 from the Inspector of Taxation for the District in which they reside, or from the local Postmaster, or Collector of Customs and Excise.

This form must be completely filled in and delivered to the Local Collector of Customs and Excise, or the Inspector of Taxation for the District in which they reside, on or before the 30th of April each year.

In filling in page 2 of the form there should be, at least mentally, blazoned across the whole page the statement, "Declare the whole truth and nothing but the truth." Thereon state accurately, total income from all sources, and proceeding to page 3 of the form, claim whatsoever deductions should be properly allowed as expenses necessarily incurred in earning the income. Only "expenses necessarily incurred" are allowed by the Department as deductions. Personal and living expenses are but an *application* of your income, and not allowed as a deduction.

In claiming deductions it must be borne in mind that for purposes of taxation there are two classes of income, primary and secondary. Primary income may be said to be that income received from the productive work continually and habitually carried on, forming the foundation of the individual's financial standing in the community. Secondary income may be said to be that income derived from sources other than one's fixed occupation, trade or profession.

From the gross income received from the practice of Dentistry one is entitled to deduct expenses necessarily incurred to earn that particular income. Expenses incurred by dentists in earning income from sources other than their profession, can only be deducted from the income so earned. If these expenses exceed the income from secondary sources, the excess of expenses are not allowed as a deduction against the income received from the practice of Dentistry. First, from the gross income from professional fees deduct only expenses necessarily incurred to earn such fees; and second, of the total deductions otherwise claimed, deduct them from the income shown as having been received from sources other than professional fees. The summation of the result of the two cases, if each reflect a net profit, gives the net income in respect of which the taxation provisions of the Act apply. If the secondary source reflects a deficit, the tax is imposed on the net income from the chief source, disregarding the deficit.

From the net income just referred to there is permitted an exemption of \$2,000 in respect of the following persons: 1. Married persons.

2. Single persons who are supporting:

(a) Parent or grandparent.

(b) Daughter or sister.

(c) A son or brother under 21 years of age, or incapable of self-support on account of mental or physical infirmity.

3. Corporations.

Any person not in any of the above classes is entitled to an exemption of \$1,000 only. There is a further allowance provided for by the

Act of \$500 for *normal* tax purposes for any child, irrespective of parentage, under 18 years of age, who is legally dependent upon the tax-payer for support.

After these exemptions have been taken from the net income, the balance remaining is subject to what is known as normal rate of tax, that is four per centum of the portion of the income above all exemptions referred to up to \$6,000, and eight per centum on all income above \$6,000. Then follows, disregarding exemptions, on incomes of \$5,000 and above the taxation rates known as the surtax and additional tax.

Finally, it is to be noted that when filing the return there must be paid at least one-quarter of the tax *as estimated*, otherwise penalties may be incurred. The remaining three-quarters may be paid in bi-monthly instalments, on the 30th June, 31st August and 31st October, respectively. The Department advises payment of the total amount of tax as estimated at the time of filing the return. This will avoid the necessity of keeping track of the dates at which instalments are due, which if allowed to pass without payment gives rise to further penalties. Subsequently assessment notice from the Department will be forwarded, altering or confirming citizen's estimation of the tax, also acknowledging receipt of payment made and assessing for any undeclared balance, which must be paid within thirty days from the date at which such assessment notice was mailed. Refund without application therefor is made if the tax-payer has paid more than the tax ultimately found to be payable.

If a person conforms to the following simple requirements he will not be subject to penalty:

1. Declares his total income.
2. Files his returns on or before the prescribed date,—30th April.
3. Pays on filing one-third (or more, preferably) of the tax which he himself estimates to be the correct amount, and the balance on the due dates referred to above.

If it is found difficult to estimate tax, put on return as your estimation the amount of tax paid for the previous year, and pay accordingly.

The Department takes the ground that the citizen is taxable on the income, and its application after it has been earned or acquired cannot affect its tax liability.

Dentists may report on an actual cash receipt basis or on an accrual basis. The former is possibly the more simple, but the latter, if a proper set of books is installed, is certainly more scientific, and will prove of real value to the practising dentist.

If practising in the same house or apartment in which he lives, the dentist may charge up a proportionate amount of the rent, gas, electricity, etc., based on the proportionate amount used in the office.

No expenditure is allowed which is not directly for the production

of income. If money is borrowed to pay for the establishment and equipment of the office, interest is allowed on this borrowed money until it is paid back.

Brains, hands, eyes, personality and health, being the dentist's capital, no interest is allowed on money spent to perfect and maintain these. This money is regarded as an investment in capital.

A more detailed statement of these principles as they are applied to the practice of dentistry follows:

Rent and heat.....	Allowed.
Janitor, light, power, gas and water (if included in your renting contract).....	Not allowed.
(Otherwise allowed)	
Supplies, drugs, precious metals, etc.....	Allowed.
Assistants' salaries.....	Allowed.
Office telephone.....	Allowed.
Laundry	Allowed.
Uniform costs.....	Allowed.
Stationery, printing, postage, etc.....	Allowed.
Magazines and periodicals, if used within the year.....	Allowed.
Library actually in use in the practice.....	10% depreciation allowed.
Laboratory charges.....	Allowed.
Borrowed money used in business.....	Interest allowed.
Depreciation of equipment.....	10% per annum allowed.
Specialists' equipment of perishable nature or short lived.....	Special depreciation may be allowed.
(e.g., X-ray machine 20% per annum)	
Small instruments having a life of one year or less, the cost may be allowed.	
Business tax or property tax on part of property used.....	Allowed.
City, provincial and Dominion income tax.....	Not allowed.
Donations and office philanthropy.....	Not allowed.
(Last two regarded as disposition of income.)	
Expenses to dental convention and society fees.....	Not allowed.
Annual Licentiate's Fee.....	Allowed.
Fire insurance on equipment.....	Allowed.
Life, sickness, accident insurance.....	Not allowed.
(Regarded as personal expenditures.)	
Money derived from life, sickness or accident insurance exempt from taxation.	
Professional liability insurance.....	Allowed.
Monies expended in defence of suits for malpractice or adverse judgments paid.....	Costs of the action paid will be allowed (not the judgment awarded).
Auditing, collecting and bookkeeping expenses.....	Allowed.
Decoration of office and repairs to office (if paid by dentist).....	Allowed.
Alterations to office.....	Not allowed.
(Regarded as additions to capital expenditures. Depreciation allowed thereon.)	
Transportation charges, including cost of operation of automobile....	Not allowed.
{Personal expenditure for transportation to and from place where income may be earned.)	

Interest on monies expended for education.....Not allowed.
 Interest on monies expended for equipment.....Allowed.
 Monies expended for equipment.....Not allowed.
 (Depreciation is given. Regarded as capital investments.)
 Bequests not regarded as income and may be subject to succession
 dues, but not to income tax.

If there are any other questions dealing with special cases they should be taken up in the first instance with the Inspector of Taxation, who will forward any recommendation in respect thereof to the Head Office at Ottawa. The following example to follow in the calculation of tax has been supplied by the Income Tax Branch, Ottawa:

AN EXAMPLE TO FOLLOW IN THE CALCULATION OF TAX.

Suppose a married man with one dependent child has an income (net) of \$12,500.00 made up of—

Professional Fees	\$10,500.00
Dividends (Canadian)	1,000.00
Rent and Interest	1,000.00

1st for Normal Tax Purposes—

Married Man's Exemption	\$2,000	
On income between \$2,000 and \$6,000, i.e., \$4,000 @ 4%—	\$160	
On income over \$6,000	i.e., \$6,500 @ 8%—	\$520
	<u>\$12,500</u>	<u>\$680</u>

Normal Tax deductions—

One dependent Child \$500 @ *8%—	\$40.00	
†Canadian Dividends \$1,000 @ 8%—	80.00	\$120

Total Normal Tax Payable\$560.00

2nd for Surtax Purposes—

On income between \$5,000 and \$6,000, tax 1%—	\$10.00
On income between 6,000 and 8,000, tax 2%—	40.00
On income between 8,000 and 10,000, tax 3%—	60.00
On income between 10,000 and 12,000, tax 4%—	80.00
On the \$500 between 12,000 and 14,000, tax 5%—	25.00

Total Surtax Payable\$215.00

3rd for Additional Tax Purposes—

Additional tax is payable by those having incomes, inclusive of exemptions, of \$5,000 or over and is 5% of the total of normal tax and surtax—

i.e., 5% of \$775.00	\$38.75
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TOTAL TAX PAYABLE\$813.75

*The normal tax at 8% is allowed just so long as the income continues to be in excess of \$6,000; thereafter the allowance is 4%.

†Normal tax allowance is given not only in respect of dividends from Canadian Companies, but also in respect of Foreign dividends if the Foreign Company has paid Income Tax to the Canadian Government on income from the carrying on of business in Canada.

American Dental Association Sixty-seventh Annual Session

Louisville, Kentucky, September 21, 22, 23, 24, 25, 1925.

OFFICIAL CALL

To the Officers, Members and Constituent Societies of the American Dental Associations.



YOU are hereby notified that the Sixty-seventh Annual Session of the American Dental Association will be held at Louisville, Ky., Sept. 21-25, 1925.

The House of Delegates will convene at 10.00 o'clock in the forenoon and 2.30 o'clock in the afternoon, Monday, September 21, in the Lounge Room, Kosair Temple. The third and fourth meetings of the House of Delegates will be held Wednesday and Thursday, September 23 and 24, at 2.30 o'clock, in the Ball Room, Brown Hotel.

The general meeting, which constitutes the opening exercises of the Session, will be held Tuesday, September 22, at 9.40 a.m., in the Ball Room, Brown Hotel, and general meetings will be held at 8.00 p.m. on that and subsequent days of the Session.

The various sections of the American Dental Association will meet Tuesday, September 22, at 2.00 p.m., and thereafter, according to their respective programmes.

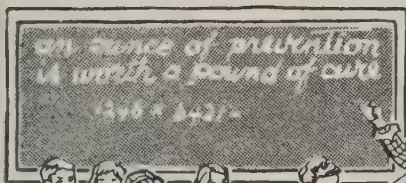
The Registration Department will be open from 8.30 a.m. until 5.00 p.m., Monday, Tuesday, Wednesday and Thursday, September 21, 22, 23 and 24, and from 8.30 a.m. to 10.30 a.m., Friday, September 25, in the Main Lobby, East Entrance, Kosair Temple.

The constituent societies are hereby notified to file with the General Secretary of this Association, at least thirty (30) days prior to the first day of said Annual Session, a list of the names and addresses of their delegates and alternates.

C. N. JOHNSON, *President.*

OTTO U. KING, *General Secretary.*

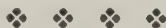
EXPOSED PULPS.—To treat an exposed pulp of a first permanent molar, place a crystal of thymol at the point of exposure and touch with a hot instrument. This causes the thymol to flow over the exposure and re-crystallize. Cover this with a thick paste of zinc oxide and eugenol, and flow in a hard cement. My experience has not been long enough to determine the ultimate result, but so far it has proved satisfactory.—*Pacific Dental Gazette.*



School Dentistry

This Department is Edited by
EDMUND A. GRANT, D.D.S.

Director of Dental Services—Department of
Public Health, City Hall, Toronto



We are *anxious to receive for publication in this Department reports of work carried on in School Dental Centres anywhere in Canada. Papers on any phase of Pedodontia would also be welcome.*—E.A.G.



“**R**ENDERING free dental service to the school children, in the school building, is no more pauperizing to the parents or the children, than giving them free mental training. Each and every child is as much entitled to every possible health activity in its behalf as it is to an education.” The dental profession of Canada should not rest satisfied until school dental service is available for every child in the Dominion.—E. A. G.



THE proof of the pudding is in the eating, and so, in order to find out if this section is of interest or fills a need, an invitation to send in reports or articles has been carried at the head of the column. Two very fine reports received are printed in this issue and it is hoped that there will be more, for with the tremendous development of School Dental Service in the last few years, with each community working out the problem in its own way, there must surely be some interesting stories to tell. We can each gain ideas from the other and through co-operation and co-ordination of methods extend and advance our cause.



SOME EXTRACTS FROM THE REPORT OF THE MASSACHUSETTS
HALIFAX HEALTH COMMISSION, 1923-24.

OUT of evil, good does often come, and one good that has come to Halifax, Nova Scotia, out of the evil of the explosion of December sixth, 1917, has been the establishment of Health Centres in Halifax and Dartmouth from the balance of a fund generously contributed at that time by the citizens of Massa-

chusetts. It is hoped that these Health Centres will eventually be taken over and controlled by the Health Boards of both places.

Children form the great majority of those attending the clinics, for it is the aim of the public health nurse to bring to the Health Centre the children of all "her families." They may be obviously underweight, they may have adenoids, or possibly someone in the family has tuberculosis. It is seldom necessary to hunt for a reason, however, because nearly always their teeth need looking after. Children of school-age are referred to the school dental service while our Preschool-age Dental Clinic looks after the small children and babies.

Looking After Their Teeth.

This clinic is our particular pride for two reasons. It just missed being the first in America—the Customs Department delayed our apparatus or it would have been—at any rate, it was the first of its kind in Canada, and it has shown results so quickly. The school dentists are constantly telling of the great improvement in the teeth of the entering school children since the Preschool-Age Dental Clinic has been operating. The year 1924-5 should see still greater improvements for a full-time pedodontist has recently been appointed to begin work in the fall. It is hoped that all the little children in Halifax and Dartmouth who are entitled to clinic attention—and that means every indigent family—will be enrolled.

Dr. Arrabelle MacKenzie, the present pedodontist, has a way with children. She tells them stories, sometimes about the tall red chimney they can see from the chair, sometimes about the bowl with the bubbly water. The boys willingly submit to her manipulations when they find out they'll be able to whistle better afterwards! As she tells her story and gains the child's interest, she continues to work on his mouth. Sometimes, however, stories, suggestions, coaxings won't work, and "weeping and wailing" often issue from the small clinic room on "dental" mornings.

The children come for attention four times a year. Naturally the first visit is the busiest. From her experience in the clinic, Doctor MacKenzie has found that the great majority of even very young children have one or more decayed teeth. The child with the perfect set of teeth is a rarity. When all the teeth are properly cleaned and treated, a most important part of the work still remains—teaching. Each little patient is urged to use a tooth brush regularly, and, more important still, is taught the foods that are bad and the foods that are good for building and keeping strong teeth. It's all the better if mother or sister are along,

for they, too, learn a few things about whole wheat bread, greens, fruit and milk.

Lessons on dental hygiene are also taught by the public health nurse in the home. One nurse tells of a family that has been visited for several years, where the youngest member, aged twenty months, has been brought up in the dental way he should go. Now, in the morning, baby demands his tooth brush with the other children—and isn't happy till he gets it!

"Albert Edward" Goes to the Clinic.

The Dental Clinic has its own little celebrity on the roll. Some months ago a little boy came with his mother to the Health Centre. "What is your name?" asked the clerk at the desk. "Albert Edward," answered his mother for him. "Oh," she said laughing, "you must be the Prince of Wales." The small boy looked at her soberly but didn't say anything. He came again a week or so ago and when asked his name he spoke up himself and said "I'm the Prince of Wales!"

* * *



REPORT quite out of the ordinary comes from Dr. A. J. Saich, of Quill Lake, Saskatchewan. Dr. Saich has a territory of about 325 square miles to cover and visit all the schools in the district, so he is truly a pioneer in school dental service.

On being retired from the army in 1919 and resuming private practice, Dr. Saich was struck with the vast number of school children with bad teeth and filthy mouths. In a large number of cases the parents

A municipality in the West consists of nine townships of 36 square miles each.

were unable to stand the expense and the rest were indifferent. In the outlying districts the children were seldom, if ever, brought to town, as the distance was too far. Believing that, if dental inspection was necessary for city schools, it was far more necessary for rural ones, where the children were sometimes more than a day's journey from a dentist, the matter was laid before the Lakeside Municipal Council, and Dr. Saich was appointed dental officer, beginning in 1920.

This is believed to be the first rural appointment in Western Canada. Dr. Saich had to organize this new service without any information as

to similar services to guide him, even making his own drawings, for charts of the teeth on the examination form used, which, of course, had to be adapted to the special conditions. It contains more information than the charts usually used and combines the examination and record card. They are made out in duplicate, one copy given to the child and the other kept on file in the school. Not having the cut it is impossible to reproduce it here, but the drawing of the tooth forms is very creditable to Dr. Saich's knowledge of dental anatomy.

Dr. Saich in speaking of his work, says:

"During the year 1920 I visited 15 schools, attended 1,283 teeth, gave 15 lectures, and 177 children had their teeth cleaned. Only 3 children had ever been to a dentist.

All bona fide school pupils under 16 years of age are entitled to free treatment at the municipalities' expense, except gold work.

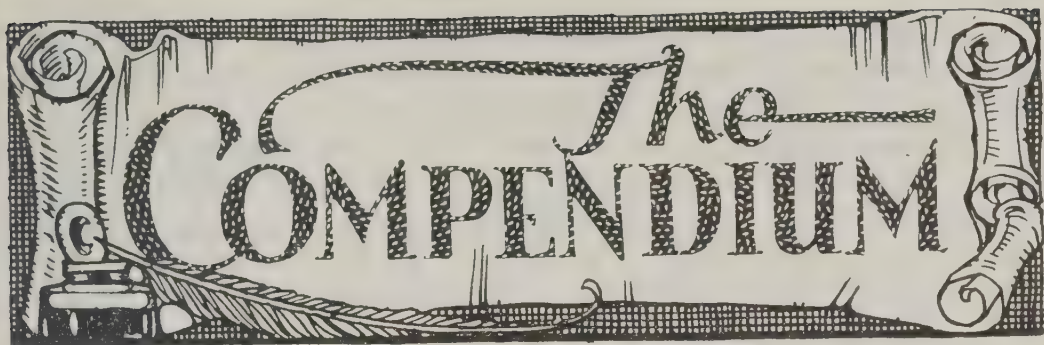
"This year, 1924, I visited 18 schools, gave 23 lectures, attended to 479 teeth, cleaned 62, and travelled 268 miles. The extra lectures were given at the request of different societies and one at the teachers' convention:

"You will readily see by comparing the two years how well the children are responding to treatment."

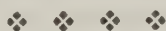
The municipality of Lakeside, Saskatchewan, is to be commended on realizing its responsibility from a community health standpoint, of caring for the teeth of all the children.

DIFFICULTIES IN PRACTICE.—It is probably in prosthetics and in orthodontics that most of our difficulties arise. Variation is a law of evolution: no two patients are ever alike, and thus every prosthetic appliance requires to be specially designed to meet special conditions, and similarly, every orthodontic case requires different treatment from all those previously encountered.

In dealing with such difficulties, one of the most important points to be considered is the personal equation as represented by the patient. Most prosthetic work is done with the assistance of models, and there may sometimes be a tendency to pay too much attention to the model and to lose sight of the personality of the individual patient.



This Department is Edited by
THOMAS COWLING, B.A., D.D.S., TORONTO



ANOTHER USE FOR SILVER NITRATE.

AMONG the many uses in dentistry for silver nitrate may be included the uses in cases of acute ulcerous gingivitis. This is suggested in a recent issue of *The Cosmos*. At least one Toronto dentist has been using this method of treatment for many years, and with marked success.

The solution is 50 per cent. strength, and is applied to every ulcerated spot, great care being taken to have it reach the bottom of every pocket created by the destruction of the interproximate gum septa. On account of the self-limiting action of this solution, much less injury is done than where mild remedies are used over a prolonged period, during which time much tissue is destroyed by the infection. The solution is applied once each day, two or three treatments usually being sufficient.

If crowns and bridges have to be removed in such cases, it is advisable to leave them until after the acute stage has been passed. If roots or teeth are to be extracted, it is best to use a general anaesthetic, in order to reduce to a minimum the danger of post-extraction complications.

A saturated solution of potassium chlorate is prescribed as a mouth wash to be used between visits, and if there is glandular involvement, sodium salicylate in 5-gr. doses every hour.

POST-OPERATIVE TREATMENTS OF EXTRACTIONS.

IF we are to form an opinion from the various methods in use by dental surgeons, we must of necessity come to the conclusion that there is a marked want of unanimity regarding the post-operative treatment of extractions. Some operators curette all sockets whether they are deemed infectious or healthy; others not only curette all sockets, but also apply strong solutions, in the hope

that any possible trace of infection will be destroyed. There are quite a few dentists who adopt both of these methods as routine practice, and supplement the treatment by packing all sockets.

In contrast to this procedure there is the more conservative method, which involves the simple removal of the tooth and a limited use of the curette in those cases only where infection is suspected. That this method has its advantages is pointed out by Mr. Lotinga in a paper read before the North of England Odontological Society and reported in the *Dental Record*.

In this paper the importance of surgical cleanliness and the elimination of infected material is not questioned; and while antiseptics are held to be useful and often necessary, the general opinion of the essayist is that they are best used simply as an aid in the promotion of natural methods of healing. The formation of a healthy blood clot in the tooth socket is unquestionably the best form of treatment. In the discussion of this paper Mr. Richardson pointed out that with the introduction of adrenalin a great change had come over the practice and field of operation in extraction. After the tooth has been removed, there is left an anaemic socket, with the blood driven out, and any organisms which happen to be in the mouth may find a ready lodging place in the bloodless socket. Mr. Richardson explained his method whereby he makes sure that the socket fills up to the gum level with blood, and that the clot is in process of formation before the patient is dismissed. The scientific basis of the after-treatment of ordinary wounds is to establish the normal condition of nature's reparation of wounds as soon as possible.

MEDICAMENT DROPPERS.—We are reminded from time to time that it is not a good habit to insert the dressing forceps into the medicament bottle to obtain a drop of fluid. Small pipettes are very easily made of narrow glass tubing, drawn out in the flame, and the end bent to the angle desired. A small length of rubber tubing with the end neatly closed provides the bulb.—*Dental Science Journal of Australia*.

TAKING THE BITE.—When taking the bite for edentulous cases, one often finds that patients persist in protruding the mandible, thinking, perhaps, that the dentist intends or wishes them to do so. When one has reason to believe that this is being done, don't ask that more movements be made, but quietly wait, and it will be found that the patient will adjust the mandibular relation to the position of rest, viz., normal. Then, with a slight upward pressure exerted beneath the chin, the bite blocks can readily be brought together.—*Dental Science Journal of Australia*.



British Columbia—Ray H. Wilson, D.D.S.

736 Granville Street, Vancouver.

Alberta—JOHN W. CLAY, D.D.S.

914 Herald Bldg., Calgary.

Saskatchewan—C. W. PARKER, D.D.S.

Imperial Bank Bldg., Regina.

Maritime Provinces—J. STANLEY BAGNALL, D.D.S., 34 Larch St., Halifax, N.S.

Manitoba—W. W. WRIGHT, D.D.S.

767 Warsaw Ave., Winnipeg.

Ontario—LIEUT.-COL. W. G. THOMPSON,

28 King St. West, Hamilton.

Quebec—ARCHIE N. JENKS, D.D.S.

Medical Arts Bldg., Montreal, Que.



QUEBEC.

MONTREAL DENTAL CLUB.



THROUGH the courtesy of Dr. J. S. Dohan the annual Spring Golf Meet was held on the famed and beautiful course of the St. Bruno County Club on Tuesday, June 9. Some forty members were matched in play throughout the day, and the cup winners were Dr. J. S. Dohan and Dr. Ralph Edmison (handicap match). The splendid arrangements were carried out by Drs. Dohan, Cameron, and Ross Cleveland.

A. N. J.



MANITOBA.



GREAT success! That's what everyone present thought of the convention at Winnipeg, May 12-15th. About two hundred registered, including dentists from Alberta, Saskatchewan, Manitoba and Western Ontario. The Dental Society of Western Canada has been revived and is now re-organized to definitely help dentistry, not only in Western Canada, but the whole Dominion. It will meet in those years alternating with the Dominion Association, the next convention to be in 1927 in Saskatchewan.

Dr. W. A. Price was easily the most interesting and attractive speaker, his wonderful fund of information and his magnetic personality being a combination worth going across the Continent for. Everybody liked him, that's all! And we had him on three different days. Besides addressing the dentists, Dr. Price delivered an address to the Kiwanis Club that was a rare treat. Your correspondent happens to be a Kiwanian, and he was repeatedly told by fellow members that Dr. Price's address to the club was the finest thing they had ever heard

at the club. He did not mention dentistry in his address, so you will see he can talk other things besides dentistry.

Dr. H. E. Maves, of Minneapolis, delivered an address on "What we as Dentists owe our Patients," and covered the subject thoroughly. He cliniced on various cavity and bridge preparations and on the manipulation of wax.

Dr. F. Warriner's paper on "Denture Service" was very comprehensive, being much appreciated. The discussion was led by Drs. J. F. Morrison and Trueman, both of whom differed but slightly in their ideas from Dr. Warriner, and complimented him on his thorough presentation of the subject.

The clinics were well arranged, instructive, and given according to schedule, except on the last day, when some alterations had to be made to accommodate Dr. Maves. The clinics included a course in Denture Construction divided into five sections, and given by a Winnipeg Study Club, Periodontia Clinics, X-ray Clinics and Removable Bridge-work Clinics.

The Reunion of Dentists at the Convention who had served in any capacity in the Great War was attended by about sixty members. Speeches were made by Major Webb, D.S.O., W. A. Myles, R. Y. Yeo, Major Cameron, and Lt.-Col. H. A. Croll. Some of the men had not met since during the war and a very enjoyable evening was spent, winding up with "Auld Lang Syne." For the sake of many from outside points who could not be present the names of those who were are given herewith:—

Winnipeg Dentists:—Bill Reid, Norman Carmichael, Bob Yeo, Jim Dow, Donald Angus Pringle Mackay, Dan McCarten, D. P. Stratton, Charlie Moore, Dan Young, Basil Brownlee, Harry Hodgson, Paul LaFleche, Wood, D. E. Wallace, R. H. Murdoch, Ben Bailey, Norman Bailey, Fred Jackson, Roy Fell, Frank Morrison, Doug. Brown, Billie McKenzie, Al. Moorhouse, Watson Myles, Art. Clint, Ben McMillan, W. A. Miller, Roy Snyder, M. E. Ritchie, J. Willis McLeod, Ken. Johnson, W. L. Sawyers, and W. W. Wright.

From Outside Points:—H. DeWitt, Regina; VanWoert; H. A. Croll, Souris; Jack Stewart, Maple Creek; Jim King, Humboldt; G. H. Bray, Morden; Archie Johnson, Moose Jaw; E. H. Clark, Minnedosa; Archie Graham, Boissevain; C. H. McKenzie, Hartney; Rory Moore, Balcarres; Miller McGrath; A. R. Hurst, Brandon; Switzer, Regina; Doug. Seale; W. Smith, Regina; R. E. Smale, Regina; Cameron, Swift Current; Grey, Picard; W. Pommer, Manitou; Mars. McLaren, Killarney.

The Convention banquet, presided over by Dr. W. F. Taylor, was a great social success. Over ninety signified their intention of playing golf on the last afternoon, but the weather man gave us the only rough stuff we had, and only some sixty faced the cold breezes on the Pine Ridge Golf Course. The golf dinner that evening wound up a most satisfactory convention, and those who were not there certainly missed something worth while.

The Manitoba Board has incorporated a by-law into the statutes

regarding advertising similar to the one in Ontario which recently stood the test of the courts.

Our new by-law becomes effective July 1st, 1925. Wonder if there will be fireworks?

It is not long since the writer ardently advocated a newspaper educational campaign here, claiming as one of the advantages that the newspapers would be more sympathetic to our ideals if we gave them business. If our big dailies should now attack our attitude (as they have done elsewhere) they can do our cause a lot of harm. The public should certainly know much better than they do why dentists do not advertise, and money spent for education in that direction would have prepared the ground for the present new law.

The new officers of the Dental Society of Western Canada are:—

Vice-Presidents—

Manitoba—M. H. Garvin, Winnipeg.

Saskatchewan—G. W. Cameron, Swift Current.

Alberta—A. E. Doyle, Calgary.

*Treasurer—*Manly Bowles, Winnipeg.

*Secretary—*P. W. Winthrope, Saskatoon.

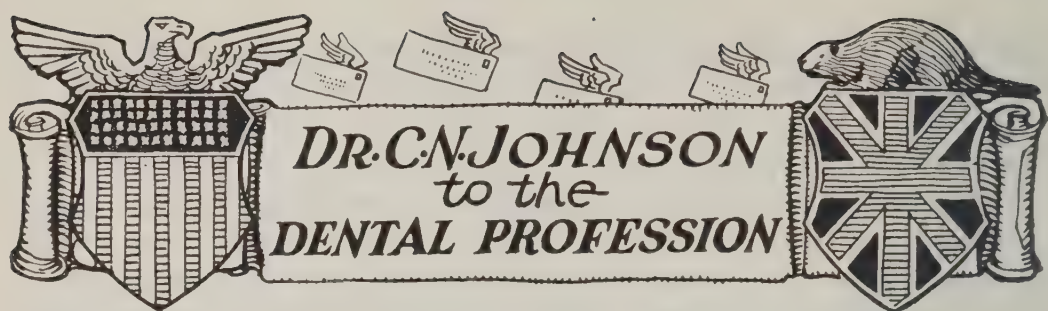
The President will be determined when the location of the next convention is decided. He will be chosen from the above executive.

W. W. W.

Being in Demand

ITERATURE, the ministry, medicine, the law, and other occupations, are cramped and hindered for want of men to do the work, not want of work to do. When people tell you the reverse they speak that which is not true. If you desire to test this you need only hunt up a first-class editor, reporter, business manager, foreman of a shop, mechanic, or artist in any branch of industry, and try to hire him. You will find that he is already hired. He is sober, industrious, capable and reliable, and is always in demand. He cannot get a day's holiday except by courtesy of his employer, or of his city, or of the great public. But if you need idlers, shirkers, half-instructed, unambitious, and comfort-seeking editors, reporters, lawyers, doctors, and mechanics, apply anywhere.—*Mark Twain.*

The real secret of happiness is to fall in love with the things you have to do.



“ I Don't Know ”



THE bravest words in the English language are “I don't know.” When a man has the courage to state frankly that he does not know, he has taken the first step toward an education. Many of the awkward situations of life are brought about by the assumption on our part that we know a thing when we really do not know—much of the erroneous information gains currency in this way. Truth is, after all, a very sacred thing, and truth is always sacrificed in the pretense of knowledge which we do not possess.

Most of us are foolish enough to suffer under a false shame when we acknowledge our ignorance of certain things which the world takes for granted that we should know, and thus we flounder along in a maze of uncertainty and deceit which is neither instructive nor elevating. Better far to come out in the open and stand for what we really are, to the end that we shall be taken on faith rather than on suspicion.

Knowledge is so complex in these latter days that it is not within the power of any man to know every thing, and thus it is not essentially belittling to ourselves to acknowledge our ignorance of many things. We are ridiculous only when we pose as knowing what we do not know—we are foolish, vain and dissembling. Let us have the courage of our limitations and stand four-square to the world with the knowledge which we really possess, and we shall have no need for expending our energy or using our ingenuity in trying to make the world think we are wiser than we are.

If “An honest man is the noblest work of God,” a modest man is the noblest work of himself—and the most admired of his fellowmen. What is there more sublime in all human experience than to see a man whom the world acclaims as wise stoop to seek knowledge of the seemingly primitive sort from some humble plodder on the pathway of life? The simpler a man is the greater he is, and the really learned man is always modest—always seeking after facts, and unafraid to acknowledge that he does not know.

Back in every man's brain there is a conviction of his own limitations, unless he by chance be a purblind egotist whose perspective is

distorted by his foolish self-conceit. Why cannot we be honest with ourselves, when "it shall follow as the day the night," we cannot then be false to our fellowmen?

The words "I don't know" are really the beginning of wisdom—the basis upon which all knowledge is acquired. People do not tell us things when they are led to believe that we know them—they volunteer information only on matters concerning which they think we are ignorant. We miss much in life in the way of mental development by assuming that we are not in need of it, and the wise man is the one who keeps an open mind and lets the world know that it is open.

No man can long hide his ignorance from the world. Sooner or later the world finds him out and takes him at his real worth—sooner or later it places him where he belongs. We gain nothing and lose much when we fail to use at the proper time the sublimely courageous words "I don't know."

C. H. Johnson

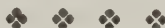
Side-Stepping



NO matter how skilfully it may be done, or how dangerous or inconvenient facing the issue squarely and honestly may seem, side-stepping is a very poor and, in reality, a very dangerous performance. Of course there is such a thing as a legitimate avoiding of an issue that one is not called on at the time to meet, but actual and deliberate side-stepping is a coward's trick that never gets anywhere and has led men and enterprises and nations into disaster thousands of times. If a thing is to be faced, and the job is somewhat manifestly up to you, the very worst and weakest and most foolish action you can take is to go around behind the barn and wait till time or Providence or some other man may work out what was evidently your duty and obligation. To begin with, neither time nor Providence nor any other man can well do what you ought to, and you will likely have to face the thing or your neglect of it, again. And in the second place, sneaking around behind the barn is poor business for an honest and courageous man.—*Guardian*.

Officers of Canadian Dental Organizations

Oral Health will be Pleased to Receive Additions or Corrections that Directory of Names May be Kept as Accurate as Possible



CANADIAN DENTAL ASSOCIATION

President: Dr. Geo. K. Thomson, Halifax, N.S.
Secretary: Dr. J. Stanley Bagnall, 34 Larch St., Halifax, N.S.

DOMINION DENTAL COUNCIL OF CANADA

President: Dr. W. M. McGuire, Simcoe, Ont.
Secretary: Dr. W. D. Cowan, Regina, Sask.

CANADIAN DENTAL HYGIENE COUNCIL

President: Hon. S. C. Mewburn, K.C., Hamilton,
Secretary: Dr. E. A. Grant, Toronto.

CANADIAN DENTAL RESEARCH FOUNDATION

President: Dr. R. Gordon McLean, Toronto.
Secretary: Dr. E. A. Grant, Toronto.

PROVINCIAL AND LOCAL DENTAL ASSOCIATIONS

BRITISH COLUMBIA

British Columbia Dental Association

President: Dr. J. Bricker, Vancouver, B.C.
Secretary: Dr. Fraser Allen, Vancouver, B.C.

Victoria Dental Society

President: Dr. Charles Harding.
Secretary: Dr. S. Youlden.

ALBERTA

Alberta Dental Association

President: Dr. Leslie McIntyre, Edmonton.
Secretary: Dr. A. E. Hennigar, Calgary.

Calgary Dental Society

President: Dr. J. M. Dixon.
Secretary: Dr. A. C. Steeves.

Edmonton Dental Society

President: Dr. L. V. Janes.
Secretary: Dr. Alex. Gerneroy

Lethbridge Dental Association

President: Dr. A. S. Fumerton
Secretary: Dr. L. T. Allen.

SASKATCHEWAN

Saskatchewan Dental Association

President: Dr. E. C. Campbell, Saskatoon.
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Saskatchewan

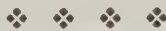
Dr. L. J. D. Fasken, Registrar, Saskatchewan
Regina, Sask., College of Dental Surgeons

Alberta

Dr. A. E. Hennigar, Registrar, Alberta
Dental Association, Calgary, Alta.

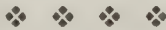
British Columbia

Dr. W. J. Lea, Registrar, College of Dental
Surgeons of B.C., Vancouver, B.C.



DIRECTORY of DENTAL MEETINGS & OFFICIAL ANNOUNCEMENTS

Dental Associations are Invited to use this Department Freely for
Announcements of Meetings



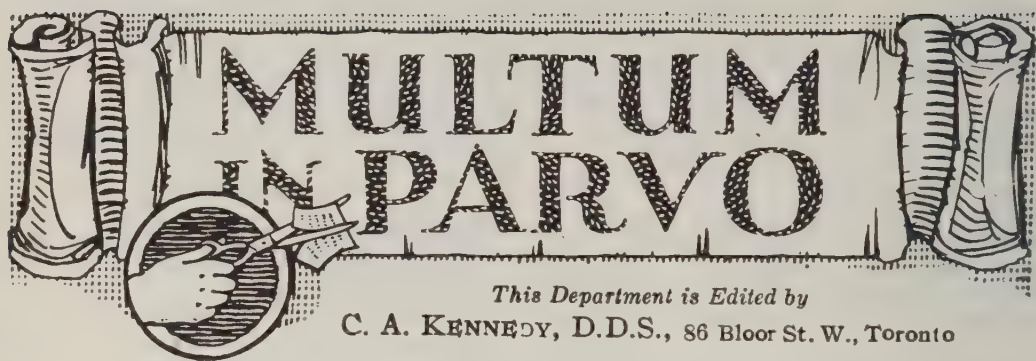
MONTREAL FALL CLINIC—Under the auspices of the Montreal Dental Club, at Montreal,
Thursday, Friday and Saturday, Nov. 5th, 6th, 7th, 1925.

CANADIAN DENTAL ASSOCIATION—1926 Meeting at Halifax, N.S. Date to be set by
Executive.

NOVA SCOTIA DENTAL ASSOCIATION—At Digby, 16th, 17th, 18th July, 1925.

AMERICAN DENTAL ASSOCIATION—1925 Meeting at Louisville, Kentucky, 21st to 25th
September, 1925.

INTERNATIONAL DENTAL FEDERATION—1925 Meeting at Geneva, Switzerland, 2nd
to 6th August, 1925.



FOR SENSITIVE DENTINE.—Try a saturated solution of carbonate of potash and glycerine; it is also useful for sensitive necks of teeth.—*Dental Science Journal of Australia.*

TO REMOVE CLOTH FROM RUBBER IN PACKING.—Apply cold water to the surface of the cloth and stroke the surface lightly with the ends of the fingers, which will cause the rubber to recede from the meshes of the cloth while you pull the cloth away.—*Dental Cosmos.*

CLEANING NICKEL.—One of the best methods known for keeping nickel-plated articles bright is to wipe them with a rag wet with hyposulphate of soda solution and dry them with a soft towel and polish with a piece of chamois skin.—*Hettinger's Dental News.*

CHILDREN'S DIET.—The growing interest in dental conditions on the part of physicians and surgeons is well exemplified by the fact that the *Medical Press and Circular* devotes considerable space in a recent issue to dental subjects. It is pointed out firstly that before the second year of life, the child possesses teeth fully capable of dealing with hard and coarse food, and that "to confine the child, as is too often done, to soft, pappy invalid food, is to cheat the masticatory apparatus of the stimulus needful for its proper development."

Proper work is the essence of health, and this applies just as much to the individual parts of the body as to the creature as a whole. Teeth that are not used for mastication will not remain healthy for long: a diseased deciduous dentition bodes ill for the permanent successors: jaws that do not receive the proper stimulus that mastication provides, will not develop to the full.

To the dentist these are truisms, but the facts are not always fully realized by general practitioners; still less are they understood by the general public. The admirable sentiments expressed in the *Medical Press* are therefore to be heartily welcomed and endorsed.—*Dental Surgeon.*

Oral Health

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Vol. 15

TORONTO, JULY, 1925

No. 7

EDITORIAL

The Professional Card in the Public Press



THE recent decision of the Second Divisional Court of Ontario, upholding the position taken by the Board of Directors of the Royal College of Dental Surgeons of Ontario pronouncing advertisements of a commercial nature by dentists as "improper in a professional respect," naturally raises the question as to the character and content of the purely professional notice inserted in the public press, when such is desired or deemed necessary.

It is not proposed here to deal with this matter from the legal standpoint in particular, but rather to discuss the ethical and professional principles that should and do regulate this important matter.

It is a time-honored principle, recognized by members of the learned professions, that a professional notice or card should not contain anything which might claim advantages or worth beyond other members of the same profession.

Dr. R. Ottolengui, in an able editorial on this subject appearing in the Dental Items of Interest in the year 1897, discovered there were

four classes of dentists in most large communities, namely: The True Professional Man, The Quack Professional, The Professional Quack, and the Simon Pure Quack. The first two of these classes are the ones we are more particularly interested in at this moment.

However, to be more particular, it is the second class that would seem to need a word of kindly admonition. The true professional man is too much occupied in giving of his best to his patients and his profession, to be concerned about advertising his own particular attainments or success.

However, every honest dentist, especially the younger man endeavoring to build up a lucrative practice, must ever be on his guard, lest he fall (it may be unwittingly) into the second class. What a temptation to do just a little "bragging" in the public press to help drive the wheels of practice a little faster; not to be thought guilty of anything unprofessional, but to do just a little "Respectable Advertising" and still retain his ethical standing in the ranks of the profession.

Questions have sometimes come to the writer something like this: "Just how much may I put in a card in the public prints about the honors I have taken at college,—about my valuable experience in certain lines of practice, or that I have just returned from a strenuous post graduate course at the well known . . . College?"

These questioners argued seriously that they had a just right to tell the public how well they were trained and equipped to take care of a really high-class practice,—and of course inferring ever so slightly that the other practitioners in the same locality were not quite so fortunate.

The answer to all such queries is: If you have come to your community with such unusual qualifications, the discerning public will not be very long in discovering the fact, and will respect and trust you all the more if you have not "bragged" about it yourself.

Generally speaking, a card in the public press, stating the name, location and office hours, is quite in keeping with truly ethical principles. Beyond this limit it is difficult to go without treading on dangerous ground.

The business man, with the commercial training and instincts, cannot understand this principle which governs the truly professional man.

The question, therefore, often asked is: Why should not professional men avail themselves of the advantage of announcing their unusual skill and large experience to the general public? The answer is as natural as it is simple. To the educated, cultured member of a learned profession, the thought of proclaiming his skill and personal superiority in the public press would be abhorrent.

Every dentist desires to be classed by his colleagues and friends as a "True Professional Man," that he may gain their respect and good will. Now, the only sure way to be thought so is to *be so*.

R. G. McL.

ORAL HEALTH

*A JOURNAL THAT STANDS FOR THE OUNCE OF
PREVENTION AS WELL AS THE POUND OF CURE*



Vol. 15

TORONTO, AUGUST, 1925

No. 8

Joint Convention of the Canadian Dental Association and the British Columbia Association, Held in Vancouver, B.C., August 4th to 9th, 1924

MINUTES OF MEETING.

The President, Dr. S. W. Bradley, called the meeting to order at 11 a.m. and declared the 12th biennial meeting of the Canadian Dental Association open for business. Dr. J. M. Magee pronounced the opening invocation.

An address of welcome was delivered by Dr. W. S. Watson, President of the British Columbia Dental Association, which was responded to by Dean Thornton, of the Dental Department, McGill University.

The Secretary presented a report on the last meeting, held in Toronto, 1922. Adoption of this report was moved by Dr. Jones, and seconded by Dr. Watson.

The President called for nominations of ten men to the Executive. The following were nominated: Dr. J. M. Magee, St. John, N.B.; Dr. Ryan, Halifax; N.S.; Dr. A. Mason, Toronto, Ont.; Dr. E. M. Doyle, Calgary, Alta.; Dr. Devitt, Bowmanville, Ont.; Dr. C. A. Kennedy, Toronto, Ont.; Dr. Fasken, Regina, Sask.; Dr. Bulyea, Edmonton, Alta.; Dr. Johnson, Moose Jaw, Sask.; Dr. Bagnall, Prince Edward Island.

Dr. Bier of Winnipeg, was also nominated, but withdrew, leaving only ten nominations. Moved by Dr. E. C. Jones, and seconded by Dr. Watson, that the nominations be closed. Carried.

The President called on Dr. E. C. Jones of New Westminster, First Vice-President of the Association, to assume the chair, while he delivered the Presidential Address.

The President gave his address.

Dr. E. C. Jones of New Westminster, discussed the President's address, and moved it be referred to the Committee on Reports. Seconded by Dr. Brighthouse. Carried.

Dean H. T. J. Coleman, Dean of the Arts and Science Faculty of the University of British Columbia, gave an address on "Can the Public be Educated?"

Dr. Frank Williams of California, addressed the meeting, and extended the greetings and good wishes of the Southern California Dental Association.

Dr. W. J. Bruce made announcements regarding clinics.

Meeting adjourned.

AFTERNOON SESSION, MONDAY, AUGUST 4th, 1924.

The meeting was divided into sections for clinics and papers as follows:

Operative Section: 2.00 p.m.

Dr. Frank A. Williams, Los Angeles, California. Clinic: Treatment of Cases Involving Reconstruction of the Entire Mouth.

3.30 p.m.:

Dr. H. E. Bulyea, Edmonton, Alta. Clinic: Special Gold Inlay Preparation for Lower Incisors.

Prosthetic Section: 2.00 p.m.:

Dr. Frank P. Smith, New Westminster. Table Clinic: Cast Gold Dentures.

Clinic:

Mr. Rudolph Hanau, Buffalo, N.Y.: Eliminating Trauma From Natural and Artificial Dentures.

Vancouver Dental Society Study Club: Dr. F. P. Smith, Chairman; Dr. W. J. Hacking, New Westminster; Drs. G. A. Pollard, W. A. Loveridge, C. D. Gatewood, Ray H. Wilson, E. Fraser Allen, Vancouver. Progressive Practical Case in Full Dentures.

Exodontia Section: 3 p.m.:

Dr. Roy Bier, Winnipeg. Lecture: "Nitrous Oxide Anaesthesia."

In the evening, the members, ladies and friends, were entertained by the local committee to a boat trip on the excursion steamer "Lady Alexandra," to Bowen Island, and after a dance and supper at the Island, the party returned about midnight, having spent a most enjoyable evening.

MORNING SESSION, TUESDAY, AUGUST 5th, 1924.

Dr. W. S. Watson, President British Columbia Dental Society, presided.

The meeting was opened with the paper by Dr. Aubrey C. Martin, of Seattle, on "How the Oral Surgeon May Aid the Prosthodontist," illustrated with lantern slides. Discussion opened by Dr. Leslie McIntyre, of Edmonton, and Dr. Dean, of Seattle.

Paper by Dr. C. J. Stansbery, of Seattle, Wash., on "The Negative Pressure Technique of Impression Taking." Discussed by Dr. H. A. Gilchrist, of Edmonton, Alta.

Dr. A. Mason, moved a hearty vote of thanks to the essayists and those who discussed the papers, which was seconded and carried.

Dr. R. G. McLean presented report of the Canadian Dental Research Foundation, and moved its adoption, seconded by Dr. Piper. Carried.

Announcements re. programme, by Dr. Bruce.

The meeting adjourned to the different sections.

Operative Section: 10.30 a.m.:

Vancouver Dental Society Study Club: Dr. T. W. Snipes, Chairman. Drs. T. R. Peden, T. N. Guy, J. S. Bricker, P. H. Vandervoort, W. K. Sproule, Harwood Spencer, W. J. Loudon, G. L. Plant, R. W. Hall, Gordon McBeth, A. F. Dyer, Vancouver.

Prosthetic Section: 10.30 a.m.:

Dr. C. J. Stansbery, Seattle. Clinic: Impression Taking.

THE AFTERNOON SESSION WAS DEVOTED TO CLINICS AS FOLLOWS:**Operative Section: 2.00 p.m.:**

Dr. Frank A. Williams, Los Angeles, California. Clinic: Treatment of Cases Involving the Reconstruction of the Entire Mouth.

Prosthetic Section: 3.30 p.m.:

Dr. W. J. Hacking, New Westminster, B.C. Table Clinic: Demonstrating Hall's Articulator.

4.00 p.m.:

Vancouver Dental Society Study Club. Dr. Frank P. Smith, Chairman. Progressive Case in Practical Full Dentures.

Exodontia Section: 2.00 p.m.:

Dr. O. T. Dean, Seattle. Clinic: Intraseptal Alveolotomy."

Dr. Roy Bier, Winnipeg. Clinic: "Nitrous Oxide Anaesthesia."

MORNING SESSION, WEDNESDAY, AUGUST 6th, 1924.

The meeting opened with Dr. S. W. Bradley in the chair.

Dr. A. W. Thornton, Montreal, Dean of the Faculty of Dentistry, McGill University, presented a paper on "Some Necessary Expansions in the Teaching of Dentistry." Discussion was opened by Dr. G. K. Thomson.

After announcements by Dr. Bruce, the meeting adjourned to the different sections.

Operative Section: 10.30 a.m.:

Dr. A. J. Garesche, Victoria, B.C. Practical Clinic:

Dr. A. F. Dyer, Vancouver. Practical Clinic: Gold Foil Restoration.

Dr. E. Kennedy, Banff, Alta. Table Clinic: Fixed Bridges Reducing Torsional Stress on Abutments With Anchorages in Vital Teeth: A Simple Method of Constructing Porcelain Pontics.

Regina Dental Society, Dr. F. K. Switzer, Regina, Sask. Table Clinic: Gold Inlays, Fixed and Removable Bridge Construction.

Prosthetic Section: 10.30 a.m.:

Vancouver Dental Society Study Club, Frank P. Smith, Chairman. Drs. G. A. Pollard, J. E. Black, W. A. Loveridge, H. A. Gilchrist, E. Fraser Allen, Ray H. Wilson, H. S. McMurray. Table Clinic: Full Denture Construction, Show Steps in Progress.

Exodontia Section: 10.30 a.m.:

Dr. Frank Hergert, Seattle. Lecture: Technique For Full Mouth X-Ray Examination. Discussed by H. C. Fixotte, Portland, Ore. Others: Drs. Manchester, R. Bier, Milton Jones, etc.

Periclasia Section: 10.30 a.m.

Dr. M. H. Garvin, Winnipeg, Man. Clinic: Gum Surgery.

AFTERNOON SESSION.**Operative Section: 2.00 p.m.:**

Dr. J. E. Argue, Seattle, Wash. Table Clinic: Porcelain Jacket Crowns as Presented at the American Dental Association Meeting.

3.30 p.m.:

Vancouver Dental Society Study Club, Dr. T. W. Snipes, Chairman: Fixed and Removable Bridges.

Prosthetic Section: 2.00 p.m.:

Dr. H. J. Merkeley, Winnipeg, Man. Table Clinic: Neil Technique for Full Upper and Lower Dentures.

4.00 p.m.:

Vancouver Dental Society Study Club, Dr. Frank P. Smith, Chairman. Clinic: Progressive Practical Case in Full Dentures.

Exodontia Section: 2.00 p.m.:

Dr. O. T. Dean, Seattle, Wash. Clinic: Selected Cases, Including Removal of Impacted Third Molars.

Dr. Roy Bier, Winnipeg. Clinic: Nitrous Oxide Anaesthesia.

Periclasia Section: 2.00 p.m.:

Dr. R. J. Coldwell, Vancouver, B.C. Clinic: Practical Case.

Business Meeting Canadian Dental Association, 4.30 p.m.:

Dr. Bradley, in opening the meeting, expressed his appreciation and thanks to the Convention committees, the essayists and clinicians and officers of the Association for their assistance towards making the Convention a success, especially mentioning Drs. W. J. Bruce and E. C. Jones.

The Secretary read the report of the Executive Council, as follows:

Your Executive Council have held two meetings and transacted the following business:

Re next place of meeting. An invitation was extended by Dr. G. K. Thomson to meet in Halifax in 1926. As this was supported by cordial letters of invitation from the Lieutenant-Governor and Premier of Nova Scotia, the Mayor of Halifax and the President of the Nova Scotia Dental Association, your Executive decided unanimously to recommend to you that the next Convention be held in Halifax in 1926.

Committees: The following Committees were appointed:

Finance Committee: G. K. Thomson (Chairman), A. W. Faulkner, Ralph Woodbury, G. K. Hennigar, J. Stanley Bagnall, Secretary.

Committee on Dental Legislation: J. W. Clay (Chairman), R. G. McLaughlin, W. J. Bruce, J. S. Dohan, F. W. Ryan.

Committee on Oral Hygiene: Wallace Seccombe (Chairman), F. J. Conboy, H. S. Thomson, J. A. Bothwell, George W. Grieve, E. A. Grant.

Committee on Dental Research: Moved by Bradley, seconded by Auger, that the Executive of the Canadian Dental Research Foundation be the Committee on Research. Carried.

Committee on Foreign Relations: W. M. McGuire (Chairman), J. M. Magee, G. K. Thomson.

Committee on Dental Education: J. S. Nolin (Chairman), F. W. Ryan, A. W. Thornton, Wallace Seccombe, H. F. Whittaker.

Committee on C. A. D. C. Establishment: W. G. Thompson (Chairman), O. K. Gibson, W. W. Wright, E. A. Grant.

It was decided to leave the matter of the appointment of Chairman of Executive Committee, the Programme Committee, and the Auditors, in the hands of the President and the new Executive.

Dr. J. Stanley Bagnall was appointed Secretary-Treasurer.

Moved by J. M. Magee, and seconded by W. A. Piper, that the report of the Executive Council be received. Carried.

The Secretary presented the report of the Oral Hygiene Committee and moved its adoption. Seconded by G. K. Thomson. Carried.

E. A. Grant presented a report outlining the formation and activities of the new Canadian Dental Hygiene Council. It was moved by M. H. Garvin, seconded by G. K. Thomson, that the Association endorse the work of the Canadian Dental Hygiene Council. Carried.

The Association is entitled to representatives on the Council, the President and Secretary and nine members, one from each Province. It was moved by Garvin, seconded by Bush, that the Provincial Association be asked to name one man each to represent this Association along with their own representatives. Carried.

Dr. Merkeley presented the report of Committee on President's Address. In studying the address, they had found that there were three special recommendations therein: first, that the Association hold annual meetings; second, that the Association publish a journal of its own; third, that a Legal Protective Association, similar to that in Ontario, be established for the benefit of the members. The Committee had carefully considered these three recommendations, and had decided not to recommend any change at the present time. He moved the adoption of the report.

There was considerable discussion on this report, as many of the members felt that these suggestions would be beneficial for the future of the Association and that something should be done towards working out a solution. Dr. Garvin stated he wished to go on record as favoring an Association magazine, and also a Protective Association, and moved an amendment that a Committee be appointed by the new Executive to look into these questions and to report at the next meeting. Seconded by E. A. Grant. Carried.

Dr. Magee moved that the remainder of the report be adopted. Seconded by Bush. Carried.

Dr. Bush moved that the incoming Executive appoint a Committee on Revision of the Constitution and By-laws, and give due notice, as required by the present Constitution, of any suggested changes, so that the recommendations could be acted upon at the next meeting. Seconded by E. C. Jones. Carried.

The next business being the election of officers, the President called for nominations of President. As Dr. E. C. Jones refused to stand, the Executive Council nominated Dr. G. K. Thomson and Dr. Bush. Dr. Bush withdrew, and as there were no other nominations, Dr. Thomson was elected.

First Vice-President: The Executive nominated Dr. E. C. Jones and Dr. J. M. Magee. Dr. Magee withdrew, and as there were no other nominations, Dr. Jones was declared elected.

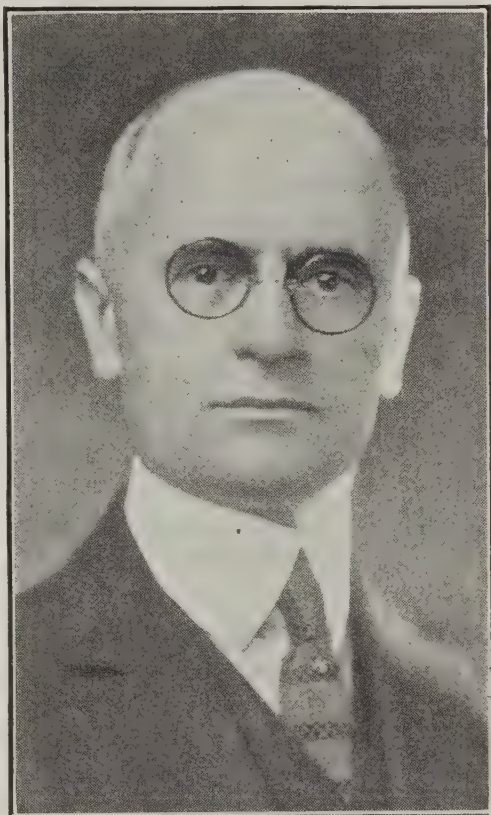
Second Vice-President: The Executive nominated Dr. M. H. Garvin and Dr. John Clay. There being no other nominations, the President named Drs. Oberg, Piper and Bedingfield as tellers, and election by ballot was proceeded with. The tellers reported a majority in favor of Dr. Clay, who was declared elected.

Dr. Bradley asked Dr. Magee to escort Dr. Thomson to the platform, and presenting him with the gavel, installed him as President of the Canadian Dental Association for the ensuing two years. Dr. Thomson assumed the chair and made a few remarks in appreciation of the honor conferred upon him, and of his plans for the meeting in Halifax for 1926.

Dr. Thomson moved the thanks of the visiting members to their hosts, the Dentists of Vancouver, and their ladies, for their splendid entertainment and hospitality during the week. Seconded by Dr. Bush and unanimously carried. Dr. Bradley moved a vote of thanks to the committees and essayists and clinicians. Dr. Oberg moved a vote of thanks to the retiring officers. There being no further business, Dr. Thomson declared the meeting closed.

On Wednesday evening, August 6th, all those in attendance at the Convention gave up the serious side of the meeting in order to thoroughly enjoy themselves at the splendid dance arranged by their hosts, the local committee, at the magnificent Hotel Vancouver. A most enjoyable evening was experienced.

The great success of the Convention was largely due to the untiring efforts of Dr. Bruce, who proved himself to be, not only a capable executive officer, but a most genial host, greasing the social events of the Convention with a personality that reflected the charming hospitality shown by the entire dental profession of British Columbia.



DR. W. J. BRUCE

Chairman Executive Committee
and Chairman of Convention
Committee, C.D.A., 1922-1924.

THURSDAY MORNING SESSION, AUGUST 7th, 1924.

Partial Denture Section: 9.00 a.m.:

Dr. Archie L. Johnson, Moose Jaw, Sask. Table Clinic: Lower Sanitary Bridge, Removable and Fixed Replacements for Lowers. Vancouver Dental Society Study Club, Dr. Emery C. Jones, Chairman. Table Clinic: Demonstrating Some Uses of Dresch, Split-bar, Roach, Basket-clasp, and other attachments.

Operative Section: 9.00 a.m.:

Dr. J. E. Argue, Seattle, Wash. Practical Clinic: Porcelain Jacket Crown. Dr. L. F. Kreuger, Toronto, Ont. Table Clinic: Anatomical Alloy Restorations. Vancouver Dental Society Study Club, Dr. O. J. Courtice, Chairman. Drs. A. Brighthouse, E. L. Thompson, R. L. Davidson: Amalgam Restorations.

Exodontia Section: 10.30 a.m.:

Dr. Frank Hergert, Seattle, Wash. Clinic: "Technique of Full Mouth Examination."

AFTERNOON SESSION.

Operative Section: 2.00 p.m.:

Dr. Frank A. Williams, Los Angeles, California. Clinic: Treatment of Cases Involving Reconstruction of Entire Mouth.

3.30 p.m.:

Dr. A. D. A. Mason, Toronto, Ont. Lecture and Table Clinic: Dental Anatomy as Applied to Operative Dentistry.

Prosthetic Section: 3.30 p.m.:

Vancouver Dental Society Study Club, Dr. Frank P. Smith, Chairman. Progressive Practical Case in Full Dentures.

Exodontia Section: 3.00 p.m.:

Dr. Lorne E. McLachlan, Ottawa, Ont. Table Clinic: Models Showing an Interesting Case in Alveolectomy.

4.00 p.m.:

Dr. Wallace Seccombe, Dean Royal College of Dental Surgeons, Toronto, Lecture: "Diet Charts for use in Dental Practice." This paper was read by Dr. R. Gordon McLean, Toronto.

FRIDAY, AUGUST, 8th, 2.00 p.m.

Golf Tournament, Vancouver Golf and Country Club.

In the following pages, all of the addresses, papers and reports that could be collected are given. Repeated efforts were made to make this as complete as possible, but some of the essayists, either through modesty or carelessness, failed to keep their promise of sending in copies. It is also to be regretted that as there was no official stenographer in attendance at the meeting, it has been impossible to reproduce the discussions which followed the various papers.

* * *

Address of Welcome by Dr. W. S. Watson, Vancouver, President of British Columbia Dental Association

Mr. Chairman, Ladies and Gentlemen:



CONSIDER it an honor to be President of the British Columbia Dental Association for 1924, and doubly so because of the conspicuous occasion which practically brings our convention year to its close. It is part of my official duty, and a great pleasure, on behalf of the British Columbia Dental Association to extend greetings and welcome to our brother Dentists from the mid-west, and the eastern provinces of the Dominion, and to the boys from across the line, to what we look forward to be one of the greatest conventions that the Canadian Dental Association has ever yet held. In using the word great, I do not mean to suggest that in numbers it will outclass some of the conventions that many of you have attended in the East, but in efficiency and in capability. I believe we have in our midst some of the greatest and foremost representatives of our Profession, and largely through them this Convention is going to be made more than worth while for us all.

I have great pleasure in extending greetings and welcome to our brother Dentists from across the line, a number of whom have come from Washington, Oregon and California, who are clinicians and operators of a very high standard. We extend to you our glad hand as you come to study with us extensive research work, and to assist in demonstrating the latest achievements of modern dental science that

have been worked out for us by our greatest leaders during the last year or two. It calls for no small degree of sacrifice for some of these boys to leave a heavy practice and come on our invitation, and at their own expense, and join with us in an all-Canadian Convention. It demonstrates to us a brotherly feeling that we in British Columbia greatly appreciate and admire.

I cannot help but think of the great meeting that was held in 1921, when Washington, Oregon and British Columbia met in convention in this city, when such a fraternal spirit was established as never before was experienced in the history of dental circles in the North-West. I trust that this great heart-to-heart feeling will continue, and just as the great imaginary line extending from the Atlantic to the Pacific, dividing, yet not separating, two great nations, with no form of defense on either side from a national standpoint, I trust that this will continue to be an example for us that no barrier, no matter how great or small, will ever be erected that will tend, even in the smallest degree, to sever the great link that binds us together in one great fraternal brotherhood. We most heartily welcome you and trust that this Convention will be one that will be most enjoyable and profitable for you in every way.

To you who have come from the mid-west and eastern part of Canada, I am delighted to have the pleasure of welcoming you. Some of you have come two and three thousand miles to join in this Convention, to exchange greetings, and assist in demonstrating various phases of technique in operative and prosthetic dentistry, to link up the East and West in greater bonds of friendship and fraternity and to establish greater co-operation in furthering the underlying principles of our profession throughout the Dominion of Canada.

A Convention of this nature is one where we meet to give and to take, and it is up to us individually as to the benefits we may derive. A story is told of a rooster who one day wandered from the usual limits of the barnyard, and while wandering in a foreign land, came across a large ostrich egg. He was amazed on finding an egg of such size, and, after a great deal of study, as though a happy thought struck him, he started to roll the egg into the barnyard, where he at once began to crow and crow with such great excitement that all the hens for hundreds of yards in every direction, came scampering to the barn-yard to see what it was all about, and after getting them all quieted down, he said, "Now, hens, this is a sample of what they do elsewhere; in the future I want you to let us see if you can't do better." Men—let us take the tip.

I have heard some very pleasant comments on your journey westwards. Many of you have crossed the great Rocky Mountains, possibly for the first time, and, no doubt, your hearts have throbbed with

delight on leaving the long expanse of prairie-land to wind up into the foothills, and in the space of a few short hours, to find yourself in the midst of a veritable paradise, and if you are acquainted with the works of Robert W. Service, our great western writer, probably some of his lines would have passed through your mind, and when you return to your homes in the East, you will be glad to say, "Yes, I have," in reply to one of the questions he puts to you in the "Call of the Wild", when using the words, "Have you gazed on the naked grandeur, where there is nothing else to gaze on; Set pieces and drop curtain scenes galore. Big mountains heaved to heaven, which the blinding sunsets blazen, Black canyons where the rapids rip and roar."

It was about this time in your westward journey, you began to realize that you were actually "out somewhere, where the Great West begins." As those great engines puffed and groaned, carrying you up into the midst of that wonderland of snow-capped peaks, "Which the blinding sunsets blazen", from whence you looked out across the visioned valleys with the silver streams streaking through them and the waterfalls tumbling down the mountains on the farther side, how you longed to be out there and enjoy such sport as that country might afford. It was then you felt your inner self responding to the "Call of the Wild." My dear friends, that was nothing more or less than the spirit of the Great West, as though with outstretched arms, bidding you welcome.

Some of you no doubt longed for your journey to end quickly; others that it would go on forever; but we hope on arriving in Vancouver you have felt a response to the far-reaching call, that has echoed and re-echoed across the Continent for the last two years—"Welcome to Vancouver, for Vancouver most heartily welcomes you this year." But greatest of all is the welcome that goes out from the hearts of the boys of the British Columbia Dental Association. We are delighted to extend to you the glad hand to-day, and trust that you will enjoy not only a very pleasant sojourn, but a very profitable experience, and that pleasant thoughts may linger long in your memory of the Canadian Dental Association Convention in Vancouver in 1924.

I trust that every one of you will inject as much "pep" into this meeting as you can. The more pep you put into a meeting of this character, the greater will be the reaction, and we will go back to our practice better equipped to meet the ever-increasing demand falling on the modern dentist.

Vigor, vim, vitality and punch,
That's pep,
Courage to act on a sudden hunch;
That's pep.
The nerve to tackle the hardest thing,
With feet that climb and hands that cling,
And a heart that never forgets to sing,
That's pep.

Sand and grit in a concrete base,
 That's pep,
 A friendly smile on an honest face,
 That's pep.
 The spirit that scatters the darkest frown,
 That knows how to help the other fellow when he's down,
 That loves his neighbor, and loves his town,
 That's pep.

To say, I will! when you know you can,
 That's pep,
 To look for the best in every man,
 That's pep,
 To meet each thundering knock-out blow
 And come back with a smile, because you know
 You'll get the best of the whole darn show,
 (And believe me, boys)
 That's pep.

—Poem by Claudia Bostwick.

Fellow Dentists from the Dominion of Canada and the United States, you are all welcome.

The address of welcome was very eloquently responded to by Dean A. W. Thornton, of Montreal.

* * *

President's Address, Dr. S. W. Bradley, President Canadian Dental Association



ACCORDING to custom, it is my privilege to address you as President of this Association. I feel deeply grateful for the honor conferred upon me, and *appreciate* my meagre qualifications to fulfil the duties of my office. Nevertheless, I shall try to do my best, and I hope my shortcomings and my errors will be censored lightly.

To our members and guests, I extend a most cordial welcome.

Those of our profession who have come from the Provinces down by the Atlantic, from old Quebec and Ontario, from the rolling Prairie Provinces, and have crossed the mountains to attend our meeting in this beautiful and progressive City of Vancouver, appreciate the kindness and hospitality of our confreres in the Province by the Pacific sea. Such a meeting as this is in entire accord with the name and policy of our Association. We wish to have our members well informed professionally, concerning dentistry, as practised all over Canada, and we are also trying to promote unity, good-fellowship, and co-operation among the members of our profession from Coast to Coast.

This thought is very well expressed in the following paragraph which I have taken from the Bulletin issued some time ago by our local Executive:

"There is, perhaps, no one thing more vital in the economic and professional life of Canada than that there be a unity of feeling and of



DR. S. W. BRADLEY, OTTAWA,
President Canadian Dental Association, 1922-1924.

understanding between its more widely separated peoples. No country, and in this respect no profession, can long endure and continue to deliver the obligation which has been imposed upon it, unless there exist between the factions something which tells them of each other; something that places the welfare of the whole in a position of paramount importance as compared with the welfare of the local section."

During my term of office, nothing of outstanding importance has arisen to interest us as a profession generally. We appear to have been resting after our effort during the war years, and the unsettled period which followed them. A sort of calm after the storm has settled over our ranks.

The most outstanding event which has occurred is perhaps the recent formation of the Canadian Dental Hygiene Council. This organization has been granted a Dominion charter, and as soon as it is completely organized, financed, and functioning, it will carry on educational work among the laity in dental hygiene. It will do in Oral Hygiene what the Canadian Social Hygiene Council and the Canadian Mental Hygiene Council are doing in their respective spheres.

Heretofore, the Canadian Oral Prophylactic Association has been carrying on this work and deserves great credit for what it has accomplished in teaching Oral Hygiene to the people. It has also done valuable research work in the Department of Dental Research of the University of Toronto in determining the germicidal properties of the so-called germicidal cements; the germicidal properties of amalgams, particularly copper amalgam, and the permeability of the cements including the silicates. It has classified the bacteria found in and around diseased teeth, paying particular attention to the streptococci, particularly the streptococcus viridans. Some experimental work on diet has been accomplished too in the research work of the C.O.P.A.

This organization is entirely self-supporting from the royalties received from the sale of Hutax products and must not be confused with the Canadian Dental Research Foundation which is supported by voluntary subscriptions from Canadian Dentists. The Foundation has also done good work, but has been hampered somewhat by the lack of funds, and has published a series of valuable bulletins covering important phases of dental practice and research.

The intention of the promoters of the Dental Hygiene Council is, that as soon as it is fully established and working, it will take over the educational work now being carried on by the Canadian Oral Prophylactic Association. One great advantage that the Dental Hygiene Council has, is that it is an organization of public spirited citizens who are not dentists, but it cannot be a success without the dental profession's hearty co-operation and generous support back of it. It may carry more weight, and influence more people to improve their oral conditions than if solely sponsored by the profession. We cannot be accused of any but the highest motives, when associated in such an enterprise with prominent citizens of other callings and professions.

In view of the fact that some of the past meetings of the C.D.A. have not been the success that should attend national conventions, and because some of our members who are greatly interested in the welfare of the Association have suggested to me that we discontinue holding conventions altogether, and exist merely as an Executive body to consider national problems pertaining to the profession when such should arise, I am going to inflict upon you a short history of the C.D.A. and

present the constructive ideas which I believe will help make this Association of greater usefulness and interest to the profession in Canada. I fear that if we discontinue holding conventions and if our Executive Council should have little or no duties to call its members together for a considerable time, it might cease to function altogether, and the profession, and even some of the members of the Council, forget that there was such an organization in existence. Then if some crisis in the affairs of dentistry in Canada arose, we might have no active national body to consider the question and protect our interests. Because you have a very successful local or provincial society does not mean that we may neglect the national body. We must be bigger and broader than that. Dr. E. H. Oliver, a speaker at the first National Conference of Canadian Students held in Toronto last year said "The outstanding peril of this land is the tendency of its citizens to think in terms of their Townships. We have thousands of children growing up in Saskatchewan who have never seen an apple-tree. They think that the Dominion of Canada is a great wide wheat field surrounded by barbed wire, and that the most outstanding creation of our Canadian architectural genius is that Parthenon of the prairies, the grain elevator at the country railway station. There are Nova Scotians who fancy that neither prophet nor university president can arise outside of Pictou. Nor are those benighted people sinners above all men that dwell in Toronto. - Just because so much of our national life centres in this City which can never quite cease to be home for some of us, in no place in the Dominion of Canada is the danger of the Township mind at once so great and so manifest as in the City of Toronto. We have to rescue ourselves from parochialism in our point of view."

This is the twelfth biennial meeting of our Association. Two years ago, we met in Toronto, holding our meeting conjointly with the Ontario Dental Society. In 1920 we met in Ottawa. The late Dr. Frank Woodbury, dean of the Faculty of Dentistry in Dalhousie University, presided at that meeting. In 1918 our Association met in Chicago, the guests of what was then the National Dental Association of the United States. Montreal was the place of meeting in 1916, and in 1914 the Winnipeg dentists were the hosts of our Association. In 1912 we had a joint meeting with the Provincial Society of Ontario at Burlington, near Hamilton. Toronto was the place of meeting in 1910. This was a union meeting with the Ontario Dental Society. The meeting of 1908 was held in Ottawa, in August of that year, and as the president, Dr. Stanley W. McInnes of Brandon, Manitoba, had died the preceding November, Dr. Jas. M. Magee of St. John, N.B., the Vice-president, had charge of the meeting. In 1906 we met in Montreal. The ambition of the Executive at that time was to establish

a British Empire Dental Association, and an invitation was sent to the British Dental Association, to send representatives to consider the project at the 1908 meeting, but none were sent. 1904 saw the second biennial meeting held in Toronto, with the late Dr. J. B. Willmott, Dean of the Royal College of Dental Surgeons, presiding. The Association was organized in Montreal in 1902 with Dr. F. A. Stevenson acting as president pro. tem., and Dr. W. D. Cowan, of Regina, Secretary. The following men were present at the first Executive meeting held in September of that year: Drs. J. B. Willmott, Frank Woodbury, Stevenson, Webster, Dubeau, McInnes, Godsoe and Cowan.

Under present conditions our meetings cannot be the success they should be. Our greatest handicap is lack of funds to properly finance a meeting worthy of the profession in Canada. Without ample capital the Association cannot function properly. It must have funds sufficiently large to enable it to bring the greatest men in the world to appear before it, and present to Canadian dentists the best and most modern ideas and methods; but not the fads and passing fancies; only what has been proven and found worthy.

Another handicap under which our Association works is the vastness of our country and the limited number of dentists who may attend meetings not held in centrally located cities. But at the rate with which dentists are increasing, a rate out of all proportion to the increase in our population, there should be a better attendance at all the meetings, no matter where they are held. The long distances separating officers of the society prevent free interchange of ideas, and co-operative work, so necessary to the successful planning of a convention. It means too, that the local Executive has practically all the arrangements to make and conduct the meeting as a local institution. This often places the work of preparing for and conducting the meeting on the shoulders of very few men, but the whole-heartedness and enthusiasm with which the present local Executive and others in the past have done their work, shows this difficulty is only a minor one. It means, too, that the large cities where annual conventions are held, and whose Executives have much experience, must not expect the smaller centres to be so efficient in organizing and conducting such meetings and they must not unduly criticize their efforts.

Another disadvantage under which we labor is the fact that we have no permanent membership. As each one of you registered here to-day, and paid your fee, you became a member for this meeting, and until the next one is held. We should have a permanent membership with annual dues, and our members given value for the fees paid.

Having presented some of the difficulties under which our society functions, I shall now give you my views, with the hope that if my pro-

posals are not worthy of consideration, they may at least suggest ideas which will produce the result we all desire; a more useful, better and healthier Association.

A suggestion which I received from a member, which would overcome the vastness of our country somewhat, was that the Dominion be divided into three districts, Manitoba and the Western provinces to constitute the first, Ontario and Quebec the second, and the Maritime provinces the third. Each district would hold their own annual meeting, and appoint representatives to form a federal council; this council to meet yearly to discuss affairs concerning the whole. This plan is good, but I think there is still a better way to make the Canadian Dental Association of real value. Let me name some things we should have to be a real living organization.

First: We should have annual meetings if we are to have a healthy active Association. Even the most enthusiastic members lose the continuity of events between biennial meetings, and forget the proceedings of the former one. These yearly assemblies might be held conjointly with the provincial societies, having a definite rotation for their occurrence, something as follows: The first meeting under this scheme might be a union meeting, with the provincial society of Ontario. The second one would be held in the East, all the societies of the Maritime provinces uniting together with the C.D.A. The third one would be held in the Province of Quebec conjointly with the provincial societies there. The fourth one in this series would be held in some Western city with all the Western provincial societies uniting with the C.D.A. This arrangement of meetings would give the more centrally located cities the greatest number of meetings. This would be the most desirable, at the same time it would give the Western and Eastern sections a generous share of the meetings.

Secondly: We should have an official magazine published by the Association: The Journal of the Canadian Dental Association, with a well paid editor, who might also be the Secretary of the Association, giving his whole time to its affairs and the production of a dental magazine equal to the best; one which will be looked for eagerly each month, and read with earnestness, pleasure and profit.

Thirdly: We could have a Dominion Dental Protective Association, similar to the one recently organized to protect the dentists of Ontario from unjust and malicious charges of malpractice, with consequent court proceedings. The central council of this Association will consider the case as presented by the dentist who is threatened with a suit for damages, and if it considers he is unjustly charged, will undertake the task of defending the case and paying all the legal charges connected with the defence. The committee in charge of the Protec-

tive Association might not only consider the legal protection of its members, but lend its aid in harmonizing Dental legislation in all the Provinces. It could take over the work now given to the Committee on Dental Legislation.

As I said before, the first and most essential need of the Association is capital to enable it to carry on. How are we going to raise it? After serious consideration, I have to admit that for the present and until we are running smoothly, we shall have to ask the provincial societies for their generous help. If they would give us, say a dollar, or even fifty cents, per member per year, until we are able to carry on independently, then the national body could undertake to give the dentists of Canada splendid yearly meetings, a good magazine, and protection from unjust charges by unscrupulous patients.

When we have reached this stage we shall not have to go begging for funds. Every wideawake ethical dentist in Canada will eagerly become a member, and our financial affairs could be conducted as they are at present by the American Dental Association. Dr. King, its Secretary, kindly gave me the following information with regard to their finances. "The American Dental Association receives its funds from the dues."

Each State Society is a component of the American Dental Association and in turn each district or city society is a component of the State organization. Therefore, hereafter a man may pay his annual dues, and most of them pay them through a component society of a state association, for all three societies included in the annual membership fee. To better illustrate: When a man pays his annual dues in Chicago, which at the present time totals \$12.00, \$4.00 of this amount goes to the American Dental Association, \$3.00 to the State Society, and the balance remains in the local society treasury. These dues, after being collected by a local or component society of the state, are forwarded to the Secretary of the state organization, who in turn retains the state society dues and forwards the American Dental Association dues to this Association.

Before closing this address I wish to thank the different Committees whose work and energy have made this meeting possible. I especially wish to thank the Transportation Committee, and the different local Committees, under the able chairmanship of Dr. Bruce, for the splendid preparation made for our instruction and entertainment. I wish also to express my gratitude to the essayists and clinicians for furnishing us with our programme.

I hope this meeting is the beginning of Annual meetings of our Association which will be held in the Maritime and in the Western provinces as well as in those centrally located. Gatherings where we may

meet our old friends yearly, and renew the friendship for those we have learned to love. Meetings which will be so instructive and entertaining, that they will be regretfully considered, by those of us who may not be able to attend, as lost opportunities to improve ourselves professionally and intellectually.

* * *

How the Oral Surgeon May Aid the Prosthodontist*

BY DR. A. L. MARTIN, SEATTLE, WASH.



EXAMINING the oral cavity we find about as many deviations from our ideal of perfection as there are in the human race from the Venus de Milo.

The Oral Surgeon may very greatly assist the Prosthodontist toward a successful result by bettering the conditions presented. The examination for surgical work should begin with complete dental radiograms and study models. The intra-oral observation should include the texture and tension of the tissues, the muscle attachments, the high lip line, and the osseous anomalies in the oral cavity. Extra-orally, attention should be given to expression, lip relationship, general facial contour and type.

The surgical assistance in preparation of arches to receive artificial dentures has recently become very popular. However, it is not a new dental service, although a great deal has been written about it in the last ten years and some controversy has arisen over its parentage. In reviewing our dental literature we find that surgical preparation has been practised for many years. The Dental Cosmos of 1876, page 118, contains an article by one of Canada's noted practitioners, Dr. W. G. Beers of Montreal, on "Excision of Alveolar Process after Extraction of Teeth," in which he gives a fair outline of present endeavors with the concluding quotation: "I have been surprised to see difficult cases return in 8 to 10 weeks with mouths quite as ready for an impression as they generally are in four months when the alveolar ridge is left to the natural processes of absorption."

In considering the ideal model arches we must remember that we have the large, medium, and small, and each may be in the square, tapering or ovoid form, with all their variations and different combinations. Nothing constructive can be accomplished by the Oral Surgeon in altering this relationship of arch shape and size. However, with the reforming of the ridge, much of a constructive nature can be done. The opposite buccal walls must be at least parallel to one another or, better still, slightly converge occlusally. This must all be done with the

* Read before Canadian Dental Association, Vancouver, 1924.

greatest conservation of the healthy osseous tissue which is to stand the stress of mastication. With this form acquired, the greatest convenience is offered the Prosthodontist in his impression-taking and the assurance of a stable denture. While arranging the soft tissue over this osseous foundation you must also give attention to the frenum and muscle attachments and the tension of the tissue, all of which play an important part in their role of retention.

In accomplishing this, we have hypertrophied gum tissue, low muscle attachments, low frenum, and large tuberosities composed of excess of gum tissue, and in the osseous tissue we have undercuts, excess of development, tubercles, especially on the lingual of the mandible, all of which may be altered for the convenience of the Prosthodontist.

I would like to define this operation of preparing the jaws to receive artificial dentures, whether it be called alveolectomy, alveolotomy, alveomerolectomy, or interseptal alveolectomy, as the esthetic forming of the ridge with the removal of undercuts, pathology and necessary arrangement of the soft tissue.

The operation consists of four steps:—

1. Removal of teeth.
2. Removal of pathology.
3. Shaping of the osseous foundation.
4. Necessary arrangement of soft tissue.

I am not concerned whether you elevate the soft tissue and remove the buccal plate before removing the teeth, or whether you remove the teeth and then resect the necessary alveolar plate. But I find teeth and roots with firm attachments that are not easy to extract, that the ridge is better preserved and extraction is made more simple by elevating the soft tissue and removing the buccal or labial plate one-third to one-half the length of the root. This also prevents undue fracturing of the alveolar plate.

The elevating of the gingival tissue should be done with great care, being sure to raise the periosteum with the tissue. Here is where you will find a great difference in the way the tissue reacts. The heavy, thick, vascular type elevates with but very little difficulty or trauma, while the thin, pale tissue adheres firmly to the process and great care in instrumentation is required so as not to traumatize nor tear it. We elevate this soft tissue with rounded, blunt, periosteal elevators. The type of gum tissue plays an important part in your prognosis for time when dentures may be worn.

To completely eradicate pathology, dentalectomy, (the complete removal of a tooth) is imperative, but it is not imperative to completely remove the entire alveolar process as we have been accused of doing. I am sorry to say some over-zealous operators have probably perma-

nently injured arches operated upon, rather than being of any assistance.

We should never criticize the preparation of a mouth unless we are familiar with the pathological conditions before the operation. We may have apical destruction from the pea-sized granuloma to the cyst which has no limitation as to the amount of its destruction. I have operated cases in which two-thirds of the mandible or superior maxilla have been absorbed. You are all familiar with the deep pockets and alveolar absorption due to periclasia and have seen mouths in which the ravages of this disease have caused complete destruction of the alveolar process. When the Oral Surgeon meets these conditions over which he has no control, his finished preparation is liable to be anything but satisfactory; however, not subject to criticism.

In the anterior section of the arches, resection is often indicated, because of esthetic reasons, it being otherwise impossible to get proper facial contour and lip relationship. The ridge may be formed by the resection of the labial buccal plate to the extent of the undercuts, with a rounding of the lingual ridge so as to prevent a paralleling or converging of the buccal and lingual plates. This may also be accomplished by interseptal resection and collapsing the buccal towards the lingual. Caution should be used against over-converging these plates and thereby lessening the area of the stress-bearing surface. Sharp chisels and rongeurs are my choice of instruments in shaping the bony frame-work.

With the pathology removed and a smooth, round, bony foundation, we adapt our soft tissue; never allowing an excess, preferably approximating the freshened edges to within a few millimeters. You should not elevate the tissue to any greater extent than to be able to take care of the undercuts and pathology. When there is an excess of tissue over the tuberosities, the removal of a "V" section approximates the tissue nicely. Low muscle attachments and frenum may be set back so as not to interfere with the seal or border of the denture. I excise these attachments with a double parallel incision to the attachment, removing the attachment and periosteum in the section; then elevate on both sides and draw together with a stitch. I prefer this method to the cutting back and stitching of the attachment. Cases operated on in this manner heal readily and with very little post-operative complaint.

I believe in stitching, especially on the upper, as it controls the hemorrhage and seals the socket with a sterile clot which is most desirable. A few stitches on the lower may assist, but the tongue and cheek tend to keep these flaps in their proper relation. Of course too much tension must never be put on stitches or tissue.

I find the dermal ligature for stitching ideal, as it is easy to mani-

pulate and does not absorb the secretion of the mouth. Hot saline mouth wash every two hours, with cold packs if there is swelling, are about all the home instructions, with the patient returning in 48 hours to the office.

If you have had to elevate your soft tissue one-third to one-half of the root length from the gingival; you had better forewarn the patient, especially the anemics and those of low blood pressure, as to discoloration in the infra-orbital and mental region. Patients returning with an œdema accompanied by discoloration will accuse you of everything from striking them to blood poisoning.

Stitches are removed in 5 to 6 days, and mouths are ready in 10 to 30 days for restoration.

In conclusion, I would like to emphasize that we are advocating this surgical interference for the patient who has these abnormalities so that he will not be incapacitated for months or years without his dental service; thus retaining the normal mandibular relation and its movements, and the muscle tone of the facial muscles; also shortening his period of embarrassment and inactivity to society.

In many cases surgical interference is not necessary, while in others just the smoothing up of the gingival border of the alveolus will suffice.

Conservation of healthy tissue should be the rule at all times except where resection is indicated for esthetic reasons. Remember, over-surgerizing cannot be corrected, but it is a simple matter to remove an undercut or straighten a ridge by laying back a flap and removing more alveolar process, if the condition of the ridges is not satisfactory after the operation.

In shaping the ridge, the esthetics, undercuts and pathology are the determining factors in your *modus operandi*, each case presenting its individual problems for the operator to solve.

With these points in mind, may we not suggest that the Prosthodontist in his many difficulties may find some assistance in his association with the Oral Surgeon?

* * *

The Negative Pressure Method of Impression Taking*

BY DR. C. J. STANSBERY, SEATTLE, WASH.



HIS being a paper on impressions, it is not within its scope to consider the problems of articulation, occlusion or other problems in their effect upon the finished denture. By my method the impression is reproduced in detail in the finished denture, you being called upon to make no changes such as marginal

* Read before Canadian Dental Association, Vancouver, 1924.

corrections nor tissue relief. The requirements of a denture are that stability, retention and comfort be attained and at the same time transgress as little as possible on nature's plan for the maintenance of health to the underlying tissues. To acquire stability, we must get an even, positive bearing on the ridges, both during mastication and at rest, the ridges being the foundation tissue directly sustaining the forces of mastication. To acquire retention may be briefly stated as taking the impression in such a way that the entire periphery slightly encroaches on displaceable tissue which has a constant tendency to regain its original position from which displaced. A negative factor to both stability and retention is pressure along the median line of the hard palate which may act as a fulcrum when the tissue on the alveolar ridge is being compressed during mastication. Another negative factor is the elasticity of the pad of tissue overlying the anterior palatine artery and its main branches if a technique has been employed that has exerted a pressure over this area. To acquire comfort, one must not lower the health of the underlying tissues by interfering with normal blood-supply, producing pressure over nerve-distribution, nor allowing undue tissue impingement especially on labial and buccal margins.

These premises form the rule and guide in the impression procedure. Remember them:—stability, ridge bearing; retention, peripheral encroachment; comfort and maintenance of health by avoiding circulatory disturbances and undue pressure.

No edentulous mouth can be considered, in the strict sense of the word, normal, for no doubt nature's plan is that our teeth should last us throughout our natural life. However, we have all seen edentulous mouths that for some time have worn no artificial denture, and they were tough and in a hard, robust and healthy condition; indeed their "gumming it" had attained quite a degree of efficiency. It is this condition that we should try to maintain under our dentures. A ridge with a roll of soft, spongy tissue along its crest, which would permit of a much better foundation if this tissue were removed, should be operated upon. In my practice I insist on this removal, and if the patient objects it is a good time to stop before you begin. Here is the patient's first opportunity to show his co-operation, and if he fails you here, why expect it in his getting accustomed to his "new teeth"? The ridge must bear the burden of mastication, so we must insist that it be in the best condition possible, though this may, at times, be far short of what we might wish.

In any tissue there is a certain proportion of cellular tissue to vascular volume,—for want of a better term call it normal balance. A so-called compression of tissue is but a diminution of the vascular content: the contents of the arteries and veins being forced out of the

tissue. The normal balance between the vascular capacity and the tissue to be nourished is thereby disturbed. It is axiomatic that to preserve the health of any tissue, its blood-supply must be normal and uninterrupted, and to this self-evident fact the tissues underlying a denture are no exception.

Give a few minutes of thoughtful resume to your anatomy. The principal blood-supply of the vault of the palate is from the anterior palatine arteries entering through the posterior palatine canals and running forward about midway between the alveolar ridges and the median line of the palate, to pass upward through the lateral canals of Stenson and there anastomose with the naso-palatine. During this course they give off lateral branches both toward the median line and toward the alveolar ridge. The gums and mucous membrane of the lip and cheeks adjacent receive their blood-supply from the terminal branches of the infra-orbital and alveolar branches of the internal maxillary. Now let us observe the blood-supply of the palate and peripheral tissues with a natural denture in place. You will find that the natural teeth, especially the square shaped teeth with but little space between their necks and thin septa between the alveoli, practically form a barrier between these two blood-supplies.

Now follows the extraction. The result is that in the alveoli blood clots form which are afterwards replaced with bone from the alveolar walls; and the tissue proliferations from the margins of these clots unite the buccal and palatine tissues and with them extend the terminations of the blood-supply of these margins. Any pressure on the palatine canals will have its effect more markedly on the termination of the blood-supply than along the arteries of greater calibre.

Now of prime importance comes the consideration of the materials with which we are to work. First bear in mind the physical properties of all the materials used, and try to make use of these properties in such a way as to aid you in the result you desire to attain. A physical property which greatly concerns us in impression taking is viscosity,—internal resistance to flow or internal friction are various names given this property. It is present in all liquids and varies greatly in different liquids. Ether, water, sulphuric acid, linseed oil, and molasses, represent a series with increasing viscosity. The inverse, or opposite, of viscosity is fluidity. In the materials with which we are concerned, plaster of Paris and modeling compound each have their viscosity, varying with the proportions of the mix and stage of setting for the first, and the degree of heat for the second. Plaster of Paris in its thin, creamy stage has a high degree of fluidity and low viscosity, and in this condition behaves in accordance with the laws of hydraulics. One of these laws is that pressure on a confined liquid is transmitted

equally in all directions. If modeling compound in any degree of heat sufficient to render it plastic is subjected to pressure between two rigid surfaces with escapement only around the margins, the area of greatest pressure against these surfaces will be that portion farthest from its escapement, and this pressure will vary according to the viscosity or degree of heat. Bearing this in mind, you will see that it is impossible to take an impression using modeling compound only and attain a uniform degree of pressure on the entire surface of the compound. This also applies to waxes and other materials that have considerable viscosity or internal resistance to flow. (Fig. 1 and 2).*

*Electrotypes kindly loaned by the Journal of the American Dental Association.

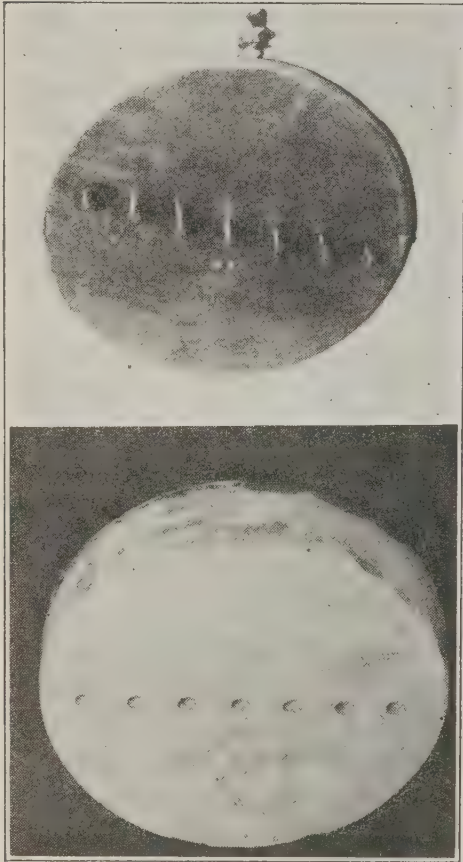


Fig. 1. A slab of artificial stone in which a series of holes of equal diameter and depth and equidistantly placed have been drilled; over this a large piece of warm modeling compound is placed and subjected to pressure against a flat surface.

Fig. 2. Represents the result of this experiment. The varying amounts of modeling compound that have been forced into the holes are but a measure of the variable pressure immediately surrounding that particular hole. It will be seen that the pressure is greatest at the location farthest from its escapement, and gradually lessens until the point of escapement is reached.

Next the tray. Its form increases its rigidity over what the same amount of tray material in the flat form would exhibit. This may be illustrated with a flat piece of tin and a pail cover. The first would easily bend while the second might sustain the weight of a man even though supported by its edges only. This form of the tray also lessens its range of elasticity; however, makes it more perfectly elastic, for elasticity is defined as the property of material which causes it to resume its original shape after distortion. As an example: a marble

or billiard ball has more perfect elasticity than has a rubber band, because on bouncing from a rigid surface they regain their original form more perfectly than will the rubber band when stretched.

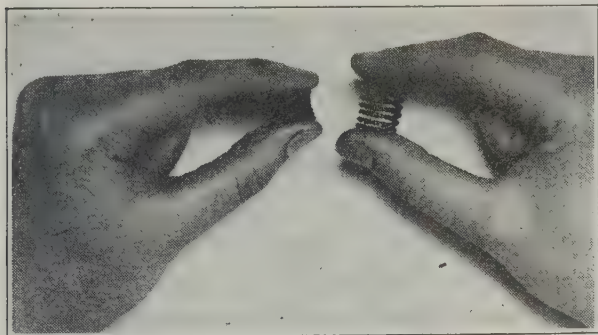


Fig. 3. Represents a coiled spring made of modeling compound. This is made by forcing warm modeling compound from a wax gun, and while still warm, wrapping around a small test tube, into the form shown on the right. The figure on the left shows the coil compressed; on releasing pressure it will resume the form shown on the right, thereby proving that modeling compound at ordinary room temperature possesses considerable elasticity.

Modeling compound at ordinary room temperature also possesses considerable elasticity. (Fig. 3). All of these properties enumerated are brought into action during the technique of impression taking. While your mind is running along these physical channels, I wish to call your attention to this drawing. (Fig. 4). Let RHL represent a rigid sur-

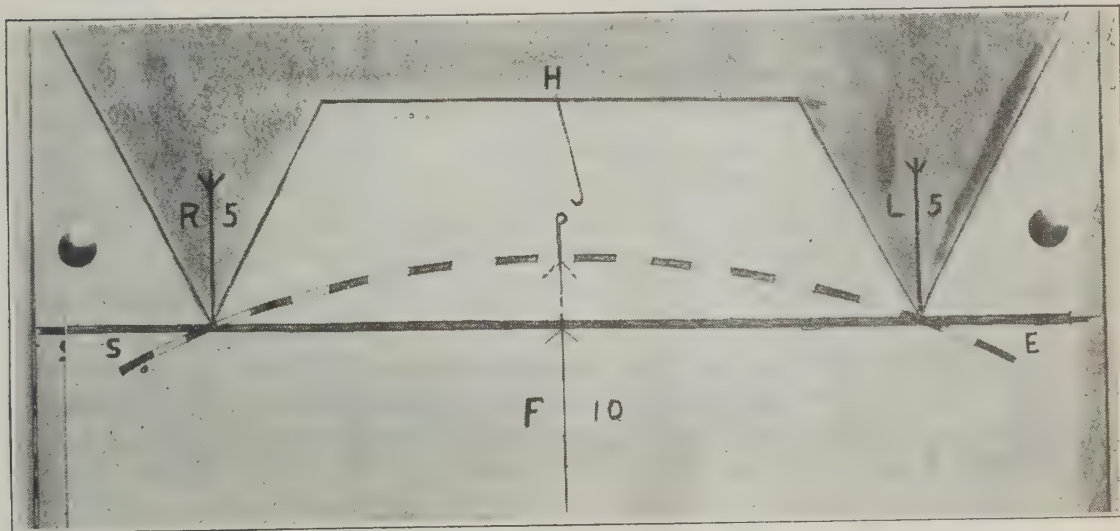


Fig. 4. The text is thoroughly explanatory of this figure. After the reading of the paper, return to this figure and supply the analogy with the final step in the impression technique.

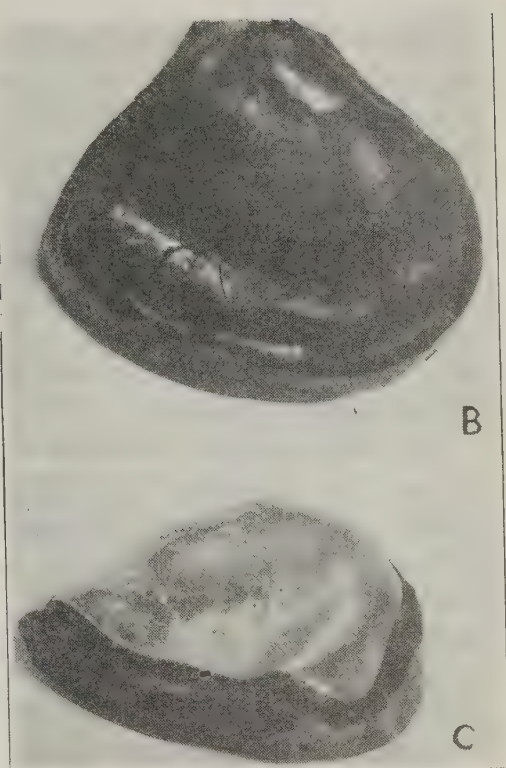
face, and across RL an elastic bar is placed. Represent the bar by SE, which stands for "something elastic". Now if a force "F" of 10 pounds is exerted upward against the middle of SE sufficient to bend this bar to the position represented by the dotted line, then you may see that both R and L are exerting 5 pounds each in the direction opposite to F. Now "H" stands for "hook" and if we place the bar over the

hook, we may then remove the force "F" of 10 pounds and the bar will be maintained in its bent position by "H," but H in turn must do the work that F was doing; that is, pull up 10 pounds. What I want you to remember is that the bar is pulling down 10 pounds on H, while the ends are pushing up 5 pounds each.

As a physical summary, bear in mind for practical application the property of viscosity of modeling compound, the fluidity of thin plaster and the elasticity of both modeling compound and the contoured tray. Also review the experiment of the elastic bar to the deduction of transferring the force "F" to the hook "H." For a further refreshment of your memory, and before taking up the technique, please review: stability, ridge bearing; retention, peripheral encroachment; comfort, preservation of health. Then again visualize blood-supply, and let your reason guide you whether or not to consider it vital and fundamental and worthy of respect. The points brought out in the paper so far I wish to call the "fundamentals," and as such I shall frequently refer to them.

We will now proceed to the technique. The technique will be set forth a step at a time, and each step confirmed by directing your attention to the fundamental upon which this particular step is based. First, a modeling compound cast (Fig. 6) is made by warming a large portion of modeling compound to a putty consistency and forcing it into a wet, chilled modeling compound impression (Fig. 5) taken in a solid tray large enough to get all the tissues involved. This is a preliminary step and conforms to nothing except convenience. On this modeling compound cast I form my tray (Fig. 7) and for this purpose I use Dr. Giffin's flexible trays made in sizes Nos. 1 and 3. The tray is closely adapted to the cast, and the buccal and labial margins trimmed low enough to avoid any possible impingement on the buccal and labial fold or muscle attachment, and the posterior margin left long enough to include postdam. The only fundamental difference here is that the tray, by reason of its shape, now has an elasticity it did not have while in the flat form.

Next, modeling compound is placed in the tray and an impression taken of the modeling compound cast so that the average thickness of the modeling compound in the tray is about 2 to 3 mm. Cut out the modeling compound about the size and position of a large air-chamber, exposing the tray beneath. Warm under a stream of hot water and place in the mouth with a firm pressure over the cuspid and molar regions to correct the approximate impression of the ridges. The fundamental reason for the cutting out of the palate portion is to allow the modeling compound to escape in both directions from the crest of the ridge and therefore have the greatest pressure on the ridge itself. The



Figs. 5, 6, 7, in their order of constructive sequence, need no further explanation, except to note the closeness of the tray's adaptation. Over casts which show a high vault, it is desirable that the tray be allowed to remain nearly horizontal from ridge to ridge, excepting at the post-dam.

tray and modeling compound are now chilled and so maintained throughout the future steps, except in that particular portion receiving attention. The entire peripheral margin, a portion at a time, is then warmed, and muscle trimmed by grasping the cheeks and lips between thumb and fingers and pulling down. This should be done to such an extent that the margin is no longer in contact with the mucous fold when the tissues are at rest,—a muscle trimming so excessive that it is of no value as a peripheral seal. The modeling compound should present to the cheeks and lips a smooth, flat surface approximately one-half inch wide. The use of this flat surface will be obvious in the final step.

The posterior margin is now trimmed to a right angle to the palatal surface, being sure that it is amply long. This angle is marked by a slightly moistened indelible pencil and after drying the palate with a cotton roll, the impression is put in place and the patient instructed to swallow. On removing the impression a fine, definite line on the palate shows the position of the margin. Close the patient's nostrils with the thumb and finger and instruct the patient to open the mouth wide and compress air into the nasal cavity. This will cause the soft palate to be

deflected sharply downwards and by observation of the indelible line guide you as to whether you have placed the posterior margin of the impression correctly. If not, correction can easily be made. The proper position is just to where the movement begins. As a post-dam, I use soft, black wax, carding wax, a strip about one-eighth inch wide and 20-gauge thick. When this is laid on along the determined margin, the impression is once more introduced and firmly seated. This cannot interfere with blood to the palate, because it lies distal to the foramen, and the soft palate is copiously supplied with blood from the ascending pharyngeal and ascending palatine. Another mitigating condition is that the line of post-dam is in the same general direction as the lateral branches of the anterior palatine.

The impression is now ready to prepare for the final step. First, expose the tray by removing the modeling compound from the palate portion, leaving only a strip under the post-dam about one-quarter of an inch wide. Laterally remove the modeling compound about to the line where the concavity of the palate meets the convexity of the ridge. Extend this cutting away of the modeling compound to include the posterior palatine foramen distally and the anterior palatine in front, also bevel slightly all the edges. Perforate the tray in about the centre of its exposed area, making a hole one-eighth of an inch in diameter, and seal this perforation on the lingual side of the tray with a cone of base-plate wax about one-quarter inch long.

Prepare the buccal and labial flange of the impression as follows: Along the crest of the muscle trimmed modeling compound, take off another millimetre for good measure, and a little more than this where either labial or buccal frenum are attached. From the inner surface of the modeling compound flange, that surface which is in contact with the buccal and labial tissue of the ridge, cut away the modeling compound to a depth of 2 or 3 millimetres, gradually tapering out near the ridge. The impression is now prepared for the final step and should present only the bearing surface of the ridge and the post-dam in contact with the tissue. (Fig. 8 and 9).

In order that you may somewhat anticipate procedure, in this final step comes the application of elasticity of tray and modeling compound, fluidity and viscosity of plaster of Paris, and the application of the experiment of transferring F to H. The resultant of all these is bearing on the ridges, relief of median line and area over blood distribution, and peripheral displacement of tissues.

With tray and modeling compound prepared as described, next mix plaster of Paris for the final impression. A method of mixing plaster, which fulfills requirements, is as follows: One-third of an ounce of saturated solution of potassium sulphate and two-thirds of an ounce



Fig. 8. Due to the difficulty of showing photographically the small difference in the shade of red between trimmed and untrimmed modeling compound, this difference will have to be looked for in the picture as a surface characteristic. Notice the width of post-dam, also the flattened buccal and labial border and the tapering of the modeling compound between the ridge and palate portion.

Fig. 9. Represents a cross section of No. 8, showing the wax cone in place and the untrimmed modeling compound forming the seat for the ridge.

of luke-warm water; into this solution sift snow-white plaster until the plaster nearly shows above the surface of the water. When all surface plaster has settled beneath the surface of the water, pour off the surplus water. Stir briskly until the first signs of thickening begin to appear. Pour this thin, creamy plaster into the tray, shaking well from side to side; experience will teach you about the right amount.

Everything thus far done is but preparatory to placing the tray and plaster in the mouth, and if not done correctly the previous care counts for nothing, so give close attention to every detail of this last procedure.

Insert the tray into the mouth, at the same time distending the cheeks and lips so that the entire periphery will be in full view, then give a slightly oscillating upward movement until plaster appears over the entire periphery. At this stage, drop the lip and cheeks, and with further pressure to the ridge of the tray, at about bicuspid region, firmly and accurately seat the tray on the alveolar ridges. Now, uncovering the perforation by displacing the wax cone, slide the fingers from the ridge to the median line of the tray, but do not cover the perforation, then give a further heavy pressure. This will cause plaster to exude through the perforation. If the pressure is relieved, the plaster will be drawn back through the perforation; do not let this happen, but while still under pressure slide a finger tip to seal the perforation and then releasing has accomplished this. The trimmed buccal and labial flanges

the pressure but maintain the seal. All this must be done while the prevailing characteristic of the plaster is fluidity. Now give attention to the impression buccally and labially to the alveolar ridge. Here the degree of fluidity that is desirable in the palate is not indicated, but a more viscous consistency meets the requirements. The degree of set act as a deflector over the top of which the surplus plaster must flow and then down the outer sides under the cheeks and lip. The resistance to this exit causes a back pressure which brings an even, gentle displacement of the tissue at the periphery, a greater displacement vertically of tissue against tissue than horizontally of tissue against bone. This peripheral margin is further formed and muscle trimmed by massaging the cheeks and lip when the plaster has reached a thickened consistency. The massage should be done with thumb and finger placed on the cheeks and lip directly external to the flat exterior of the flange described in the modeling compound portion of the technique. This massage will cause a slight displacement, more than that which was caused by the mere flowing over the flange when the impression was seated on the ridges. Use the left hand for this massage, as the right is still engaged in maintaining the seal in the palate. When the plaster has thoroughly set, remove and examine.

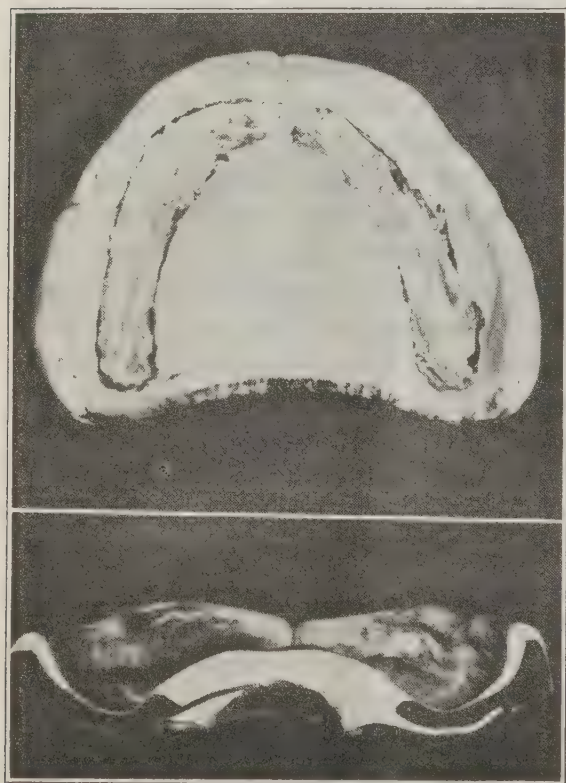


Fig. 10. The points of interest in Fig. 10 may be followed from the text.

Fig. 11. Tells the whole story. It is a cross section of Fig. 10 at the point of perforation. From left to right, note the following points: First, the film of plaster on the buccal side of the flange that has been left after the massage through the cheeks has forced the plaster to the position directly over the buccal flange for the sake of retention; second, note the plaster in its varying thicknesses lying against the buccal surface of the ridge; then comes the seating of the ridge, shown by but a thin film of plaster remaining at this point. Notice the finger print on the under surface of the tray, made there while sealing the perforation, and note particularly how the finger tip has been drawn up through the perforation by the suction or negative pressure when the tray was allowed to resume its unsprung position. The same suction that was exerted on the finger tip by the plaster while in fluid condition was exerted on every other like area, surrounding this confined plaster.

The palatal aspect of a well-taken impression (Fig. 10) should show modeling compound over the entire untrimmed ridge as evidence that the plaster was sufficiently fluid when the tray was seated; it should also show the entire wax post-dam. All other surfaces should present a plaster surface only. There should be no bubble on the palate that would indicate a leakage of the seal. At no place should the modeling compound of the flange be exposed.

Let us now apply the fundamentals to this finished impression, using the impression as evidence, as to whether or not they have been fulfilled.

FIRST.—An even, firm pressure on the ridge for stability; (Fig. 11) the modeling compound showing through the plaster confirms this.

SECOND.—The exudate of plaster from the perforation when the median pressure was applied, and its being drawn back on release of pressure, should prove to you the elasticity of the tray and modeling compound.

THIRD.—The heavy pressure with perforation uncovered is the force "F" in the experiment; the plaster is the hook "H", and the sealing of the perforation was the hooking of the force "F" onto the plaster "H" which, in turn, had to be supported by the tissue beneath. The fact that the palate portion of the impression, that taken in plaster, adheres and does not break away from its modeling compound surrounding, shows that the tray and modeling compound had returned to their original unsprung condition before the plaster had set. Fundamentally, all this was done to relieve the hard median line and area over the blood-supply.

FOURTH AND LAST.—The peripheral seal for slight displacement of the margin, was made by massaging the plaster that had run over the edge of the modeling compound flange back against this peripheral line. This is done to answer to the fundamental of retention. May I call your attention to the fact that, while the impression was taken at one time, three distinct areas, each with its own individual condition, existed. First, the area within the post-dam and modeling compound under a suction or negative pressure; second, the area of the ridges under heavy pressure, and third, the area without the ridge, taken under a variable pressure increasing from ridge crest to peripheral seal. As a distinctive method, based upon logic and confirmed by clinical use, I am sure that your adoption of this procedure will do away with many of your impression problems. I am calling this method "The Negative Pressure Method of Impression Taking", and wish that you would refer to it as such.

If this paper lessens any of your troubles, or causes you to think as you take impressions, then I am amply repaid and thank you for the privilege of appearing before you.

Some Necessary Expansions in the Teaching of Dentistry*

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*Knowledge comes, but wisdom lingers,
All things here are out of joint,
Knowledge comes, but, slowly, slowly,
Creeping on from point to point.*

IT might almost be supposed that, when Tennyson wrote these words, he had in mind *the profession of Dentistry*. But terms like near and far, long and short, fast and slow, when applied to *time*, must of necessity, be relative in meaning. Many of the pioneers in dentistry have fallen asleep, but so short a time has elapsed since they were with us in the flesh, that we find it difficult to differentiate between the past and the present, the old and the new, the modern and the antiquated.

In an old minute book of McGill University, under date of December twenty-third, 1903, I found the following resolution—"That inasmuch as the profession of Dentistry is at the best only a surgical specialty, it is undesirable that the University should grant the Doctor's degree in connection therewith."

A more illuminating feature of the status of dentistry, in McGill University in 1903, is seen in the following series of resolutions:

(1) That it is expedient that the University afford due facilities for the instruction of those seeking to enter the dental profession.

(2) That to this end there be established a dental department of the Faculty of Medicine, which shall undertake this instruction.

(3) That certain of the Professors of the existing Dental College of the Province (for the present not more than three in number) who are not members of the teaching staffs of other universities, be appointed by the Governors, Professors in their subjects, in the Dental Department of the Faculty of Medicine.

(4) That all professors engaged in teaching Dental Students shall, together, form the Executive of the Dental Department, of which the Dean of the Faculty of Medicine shall be ex-officio Chairman.

(5) That the Executive of the Dental Department, subject to the approval of the Faculty of Medicine, shall be responsible for determining the course of study and examinations of the Dental Students, that it

* Read before Canadian Dental Association.

shall, as a body, be responsible for the expenses and debts contracted by the Department, the responsibility of individual members of the Executive, being a subject of mutual agreement between members of that Executive.

These resolutions were passed only twenty-one years ago.

To-day McGill University, in common with many of the universities of the United States and Canada, has a Faculty of Dentistry with rights, privileges and responsibilities, similar to those of all other faculties.

The teaching Clinic of the University is, in common with Medicine, carried on in the Montreal General Hospital, where again Dentistry has the same standing and recognition and must assume the same relationship and responsibilities as the Faculty of Medicine in carrying on the work of the Hospital.

At the present time, the Dental Surgeon in Charge in the Hospital is a member of the Board of Governors, and is a member also of the Medical Board of the Hospital. These positions are not, however, *ex-officio*.

What is true concerning the teaching of Dentistry in McGill is probably true of many of the Dental Faculties, schools and colleges of North America.

And now the question arises, "have we gone far enough?"

Many men living to-day can remember the time of *indentures*, when prospective dentists were compelled by law to serve some time, from one to two years in a dental office, under instruction, with a licensed dentist. That time, of course, has gone never to return. Has Dentistry to-day reached a point, when everything coming under that specific term, can be taught, and learned in the ordinary four year course of an ordinary Dental College.

I am not unmindful of the fact that one year, or two years of university training are demanded to-day by many Dental Colleges as entrance requirement, and this must be followed by four years of academic work in the Faculty of Dentistry prior to graduation.

But even with this four year training following two years in pre-dental university work is a graduate to-day prepared to go out and practise Operative Dentistry, Prosthetic Dentistry, Exodontia, Orthodontia, Prosthodontia, Periodontia and all the other "dontias" which have been, or may be in the future, grafted on to the already overburdened tree of Dental Knowledge?

I think I am safe in answering that question with an emphatic "No."

Dentistry is no longer a matter of extracting teeth and supplying artificial dentures. "Nature's great incubator" the mouth, has assumed

an importance, in connection with the general health, that can neither be ignored nor neglected.

Focal infection from the mouth is too common, and the results from such infection too well known and of too serious a nature to be overlooked or underestimated.

These specialties are here to stay. Why? Because, primarily, it is physically and mentally impossible to cover all the subjects now included in a Dental curriculum and to give to the students such a knowledge of these subjects as to enable them to go out and engage in any or all of these subjects, and expect to give the standard of service which a patient has a right to expect. As well might you expect a medical student to be prepared, immediately after graduation, to engage in major surgical operations or to possess that fund of knowledge which comes to professional men only after years of experience. But there is a further reason why specializing in dentistry is here to stay. We are living in a luxurious age, and people demand and are willing to pay for a high standard of Dental Service as part of a high standard of living.

There is still another reason. Specialists in all professional callings are well paid for the service which they render. It is then a case of "the loadstone and the magnet."

There is another and very cogent reason why the specialties are a permanent part of our professional life. The man in general practice feels that his training, his office, his equipment, his assistant, cannot at one and the same time lend themselves to general practice and the successful conduct of a special line of work also.

The question then arises, must the general practitioner never enter the field of the specialist? Must specialists be born and not made?

Let me answer these questions by saying that no man can become a *specialist* in the highest and best sense of that word who has not passed through the training school of general practice. What course then should a man pursue who desires to devote his energies to some special work? We assume, of course, that such a man has taken the regular course in a reputable school and has familiarized himself with the problems of general practice and the ethical relationship between such general practice and the specialty he desires to follow.

Two courses are open to such a man. The first is to go to some reputable school and follow such a course of instruction as will fit him for intelligent service in the special line of work he purposes following. I know that just at this point I am treading on dangerous ground. If you will consult the *Dental Cosmos* of January, 1924, you will find that this very question is pretty fully discussed, with perhaps more force than logic. Permit me to draw your attention to a few of the statements in the article to which reference has been made.

This paper has been written with a view to giving to the general practitioner a clearer conception and broader vista of those complicated and obscure procedures which are generally classed as minor oral surgery.

SPECIALIZATION AND ITS FUTURE.—With the broadening of dental science from the purely mechanical handicraft of the past to the present evolution of a multitude of specialties that have sprung up like mushrooms on the dental horizon, ramifying and anastomosing as they do with biological, chemical and medical sciences; adding to this the frantic and persistent knocking of the medical profession at our door to assist them in diagnosing and eradicating diseases of the mouth that have been found to have such great potentialities in undermining their patients' health and vital forces, the dental practitioner has suddenly awakened to the realization of the fact that he is lamentably and totally unprepared to grapple with the situation.

This condition of affairs has given rise to the creation of specialists in different branches of dentistry to whom dentists may in their despair apply for advice and assistance.

This tendency for specialization will grow in intensity as the years roll by, until the present generation of dentists and the many antiquated commercial college factories of the present, with their antiquated staffs of instructors, will disappear from the arena and a new type of oral specialist, the stomatologist, trained on a broader basis in all medical and biological sciences, will be created to supplant them. Until then no medical or dental practitioner can well afford to practise his profession without at least keeping himself informed of those possibilities that the specialty of oral surgery may offer to him, both in improving on the nature and quality of the services rendered and results obtained, as well as the better remuneration to which such services may justly entitle him.

FUNCTION OF ORAL SURGEON.—The oral surgeon is now the connecting medium, the link in the chain of the hitherto separate and distinct professions of medicine and dentistry. He is the advance guard to whom both professions are looking as the one who is best qualified to diagnose and treat oral and maxillary lesions that may have serious systemic or pathological effects upon their suffering patients. It is the oral surgeon that will ultimately lead the two professions into their logical relationship for the benefit of both of them.

The impetus that the focal infection theory has obtained in both professions within recent years has been the most important single factor for the remarkable transformation that has taken place and has molded both professions into a better and closer understanding of each other's problems and aspirations.

The remarkable work done by dentists and oral surgeons during the

war, in plastic and oral surgery of the face and maxillae, has made the medical profession realize its mistaken past attitude of aloofness and swellheadedness, and has made them cognizant of the urgent necessity of associating themselves with and consulting dental specialists in the treatment of all oral affections and injuries coincident to modern warfare.

The practice of oral surgery is such a vast field, ramifying as it does with so many allied branches, like pathology, embryology, bacteriology, radiography, anaesthesia, etc., that it will be only possible for me to scratch the surface and lay stress upon these points that I find from my daily contact with the general practitioner he is most deficient in, and in which he is most in need of information.

IGNORANCE OF PHYSICIANS OF DENTAL PATHOLOGY.—The writer had a multitude of cases referred to him by physicians for the surgical treatment of periodontoclasia in an effort to improve the declining health of their patients, entirely failing to suspect that these patients may suffer from some form of nephritis or diabetes which might have been responsible for the condition of pyorrhea and the systemic disturbances complained of, as was proven later by urinalysis.

Many physicians, including some of the best internists, display lamentable ignorance in dental pathology by ordering the removal of every tooth that has a gold crown on it, as if the gold, *per se*, had disease-producing potentialities rather than the state of health of the pulp and the periodontium, as revealed by radiography, vitality tests and clinical examination.

IGNORANCE OF DENTISTS OF DENTAL PATHOLOGY.—Neither are dentists better in many respects. Very often I get instructions to operate on pyorrhea surgically, to lance an abscess or remove an impacted tooth in mouths afflicted with Vincent's infection. To operate on these cases would end disastrously.

CO-OPERATION OF THE PHYSICIAN AND THE DENTIST ESSENTIAL.—It is high time that the dentist should familiarize himself with medical subjects in order to be able to diagnose cases properly before referring them to the specialist for treatment; particularly is this true in cases of syphilis and neoplasma, which the dentist has the best opportunity to observe in their incipient stages, before these unfortunates are forced to consult a physician, after great harm has already been done.

Conversely, it is about time for physicians to familiarize themselves with dental pathology and methods employed by the dentist to diagnose and eradicate diseases of the teeth and the maxillae, and to recognize the fact that the physician knows very little about dental matters and problems that require years of special training to master, and, therefore,

leave all such matters to the knowledge and judgment of the dentist, who is properly qualified to handle these cases.

The other course is to go to the office of some man already engaged as a specialist in the line of work in which instruction and further training is sought. There is, perhaps, another method of fitting one's self to become a full pledged specialist. This latter method is to form a class and have a specialist come to your town or city and give a course of instruction, varying in length from twenty-four hours to a week.

But notwithstanding all that has been said of "commercial college factories," their antiquated staff of instructors, the general ignorance of dentists and physicians as a body, and the prophecy that "a new type of oral specialist, the stomatologist trained on a broader basis in all medical and biological sciences, will be created to supplant them," I still think that a hospital with its trained staff of medical men, surgeons, pathologists, and other specialists is the best place properly to equip one's self for service, differing from that usually spoken of as "general practice." Dentistry has grown quickly, more quickly perhaps than the institutions prepared to train men, in "the multitude of specialties that have sprung up like mushrooms on the dental horizon."

There is a body of men in this country at the present time of whom perhaps not very much is heard, but who, during the last twenty-five years, have wielded a tremendous influence on Dental Education, both in the United States and Canada.

This corporate body is known as the American Association of Dental Schools. Every reputable Dental School in either of these two countries is, or may be, a member of this organization. No other body of men is so well qualified to determine the manner in which post-graduate work in dentistry to fit men for special service should be carried on. This body of men has no axe to grind and no selfish purpose to serve.

But the men constituting this body do know the scholastic standing of the men in the various schools and colleges and the facilities which these educational institutions possess to properly fit men for any or all of the recognized specialties in Dentistry.

In the past certain individuals, possessing or claiming to possess special knowledge along certain lines, have gone from city to city giving so-called special courses, said courses lasting from half a day to a week. Some good has resulted from such courses, but great disappointment has, as might be expected, followed many of such efforts. It is still true that "there is no royal road to learning."

I am persuaded that the time has now come when post-graduate as well as graduate training should be undertaken only by such institutions or individuals as have the imprimatur of some institution or body of men whose endorsement will be a guarantee of fitness to properly perform the work undertaken.

Discussion of Dr. Thornton's Paper

BY G. K. THOMSON, D.D.S.

Mr. President, Ladies and Gentlemen:

WHEN I was invited by Dr. Bruce to open the discussion on this paper I gave the matter very careful consideration, and realizing Dr. Thornton's extensive experience and knowledge of matters educational, particularly in a dental sense, his national gift of repartee, and his international reputation as an orator, it was with great diffidence I accepted. However, I said to myself, "This will be an opportunity for you to direct the attention of the Canadian Dental Association to ideas which your experience of 25 years as Secretary Registrar of the Nova Scotia Dental Board, Teacher in the Dalhousie Dental School and Representative on the Dominion Dental Council has taught you should receive the careful consideration of a national body."

Not only in the Maritime Provinces but in every Province in Canada has it been realized that more co-operation is necessary in matters of legislation and professional education, as well as the dental education of the public, from a public health standpoint.

During the present meeting of our Association it has been suggested that a meeting of the D. D. C. with representatives of the Dental Faculties and C. D. A., get together for an informal discussion of educational and legislative standards with a view to suggesting uniform standards for Canada which will be acceptable for every Province. I do not think that meeting has yet been arranged, but whether or not we find time for it I would suggest that we be permitted in this discussion—and I hope the discussion will be general—to consider the idea of co-operation in systematizing and standardizing our legislative and educational requirements. This is probably the most important subject we have to consider at this convention, for while we realize the excellence of the papers and clinics on the other professional subjects, we must remember that without laws and educational standards our profession, as such, would cease to exist and it would be impossible for us to provide these clinics and papers, or assist in public health work. Some time ago in writing Dr. Thornton I said that surely it should be possible for us to agree on a sane, reasonable, and practical standard throughout Canada, and he replied, "God speed the day."

I think, however, if the day has not quite arrived, that it will soon be here and that we should take advantage of this opportunity to hasten it. I have said that this is the most important subject we can consider and I wish to congratulate Dr. Thornton, not only on the clear and com-

prehensive manner in which he has presented it, but on the fact that he selected it for our consideration, for I think it is the duty of every member of the profession in Canada to take an interest in it, and do everything in his power to solve our problems.

Before making any suggestions with regard to the action on the part of the Canadian Dental Association with regard to uniformity, etc., I would like to say a few words with regard to some of the points emphasized in Dr. Thornton's address.

In the first place, I agree with him in practically all his statements, but in a modified form. The necessity of expansion in teaching dentistry, except with regard to preventive and post-graduate work, does not exist. It is rather more important, as Dr. Thornton suggests, with regard to metallurgy (and, I might add, chemistry); for instance, that a modification of teaching present subjects should be accomplished, for there is certainly no subject in present curriculum with which we can dispense entirely if we are to produce a graduate who is so educated in the principles and practices of the various branches that he may engage in general practice and learn by experience and further study to specialize in each branch. I think we must agree with the essayist with regard to the necessity for specialists within the profession, but if he means that general practitioners as such shall cease to exist, and the profession become a collection of specialists, we must differ with him.

My personal experience is that it is quite possible for graduates of dental schools, even when the course was only two or three terms, to equip themselves by study and experience so that they might conduct a general practice, specializing in every branch. This may seem a large order, Sir, but I believe if every general practitioner would attempt it there would not be the necessity for the present number of specialists, and the public generally would receive better service. For instance, what is there about the study and treatment of periodontoclasia to-day which would prevent the general practitioner giving his patients, when they present for so-called "pyorrhoea treatment," the same service as a periodontist would give; or patients who require surgical removal of impactions, reparative and prosthetic, restorations, etc., the services of specialists in these branches? Nothing except the lack of inclination and the effort to equip themselves for the purpose by the experience of general practice and further study. The graduate of our present schools, with a course of four or five years, should be much better equipped than the older practitioners were when they graduated. If, however, the general practitioner decides to specialize, it is desirable, as the essayist suggests, that the post-graduate instruction be received from trained specialists connected with a dental school and hospital, or approved by universities. In this connection may I be permitted to

quote from a letter I received yesterday from Dr. W. J. Gies, with whose excellent work in connection with the standardization of dental education in America you are familiar. Dr. Gies writes:

"Our report will recommend that particular attention be given to the training of general practitioners of dentistry; that such training be made a primary objective of dental education, and that due provision be made also for graduate courses for intensive and systematic training in dental specialties independently or jointly with schools of medicine, according to the nature of the specialty. I am confident that a well-trained general practitioner can very effectively develop his own specialties, and that with earnest attention and cumulative experience can practise very acceptably a specialty on such a self-made basis. This would seem to be a normal and natural procedure for general practitioners with particular talent and strong inclinations, who could not avail themselves of opportunities afforded to the agency of graduate courses. It stands to reason, however, that all types of capacity and experience to which I am alluding could be refined and polished for increased effectiveness by instruction from such other talented and experienced men in the same specialties as might offer graduate courses in good schools of dentistry."

There is no doubt that there is too much time consumed in the teaching of the subjects in our curriculum, but that is a matter for the consideration of our dental faculties, and doubtless the necessary pruning suggested by our essayist and others will be done. We have all realized the necessity for the medical students receiving special instruction in dentistry, but the medical faculties do not seem to realize its importance, and it seems to me a resolution of your Association directing their attention to it is desirable. The essayist states emphatically that the dental college graduate of to-day is not prepared to engage in general practice, and compares him in this regard with the medical graduate. With all due respect to Dr. Thornton's knowledge and experience in teaching, I wish to state just as emphatically that the average dental graduate of to-day is much better prepared for the general practice of dentistry than the medical graduate is for medicine, and also better prepared than the dental graduates of many years ago who have been of much service to humanity. We all realize that improvements can be made in our curricula, and that the time for the teaching of some of the subjects should be curtailed, and, in the case of others, increased. And in this connection I would refer you to the excellent address of Dr. J. Oppie McCall before the American Association of Dental Teachers. Dr. McCall advocates a rearrangement of our curriculum, so that more attention and time will be given to preventive dentistry and research before the teaching of reparative and restorative oper-

ations, and that the student should be impressed with the necessity of securing harmonious occlusion, which he considers the very foundation of the practice of dentistry. He also states that an understanding of the correct adjustment of occlusal relations is not only a pre-requisite in all branches of dentistry, but that it demands standards of precision of which we have heretofore been uninformed. Time will not admit of quoting Dr. McCall's paper at length, but his idea that preventive dentistry should be one of the fundamental subjects, and that the students should be taught normal relations of the teeth before dealing with diseased conditions, seems worthy of serious consideration. In our Dental Faculty of Dalhousie University we agree with Dr. McCall that these suggestions are worthy of a trial, and, with that end in view, have established a separate course in preventive dentistry.

Now, Mr. President, I think that we all agree that a uniform standard of legislation and dental education is very desirable, and would prove a remedy for many of our difficulties, such as graduation of unqualified students, unequal division of students among the colleges, registration of unqualified men by special legislation, unethical practice, etc., and that such uniformity can only be secured by co-operation of the various provinces in a special effort to obtain it. It would also result in complete reciprocity throughout Canada.

At present in Canada and the United States our standards are at fours, fives and sixes, and this would seem a very opportune time for Canada to set an example to the world by adopting a standard which would be acceptable to the various legislatures as well as universities. The following are suggestions contained in the latest report of Dr. Gies, and, in a modified form, might well be adopted in Canada:

“(a) Requirement of at least two years of pre-professional work in an academic college, including several courses that would stimulate interest and develop ability in, or reveal ineptitude for, the prospective practice of dentistry.

“(b) Reorganization of the undergraduate curriculum in dentistry into three academic years instead of four, each lengthened, if necessary, to make that curriculum particularly effective for intensive and adapted training in the medical sciences, in dental technology, and in clinical dentistry and oral medicine, in preparation for the safe initiation, by the graduate, of competent *general* practice of dentistry; the courses to be equal in quality to, and as far as possible interchangeable with, those in the corresponding subjects in the undergraduate curriculum in medicine; the degree of B.S. to be awarded at the end of the second dental year, and the professional degree, on graduation, to be that required for admission to the licensing examinations, which at present is D.D.S. or D.M.D.

"(c) Addition of *elective*, full-year, graduate curricula, based on the three-year undergraduate curriculum and conducted on a high plane of scholastic quality, for the systematic and intensive training of all types of specialists of the practice of dentistry, with award of commensurate academic degrees, including M.A. or M.S., after at least one year of successful graduate work; and Ph.D. after completion of at least two years of graduate work and attainment in research.

"(d) Establishment of combined dental and medical curricula, with suitable accessory hospital facilities, for united medical and dental training of specialists in oral surgery, public health service, medicodental research, and other fields on the border lines between dentistry and medicine, with award of academic and professional degrees in accord with the types of study concluded and the achievement therein.

"(e) Provision of extension courses for practitioners, and of curricula for the proper training of dental hygienists and technicians.

"(f) Active promotion of research, now almost non-existent, in the schools of dentistry.

"(g) Development of adequate library facilities, now conspicuously absent from most dental schools.

"(h) Discontinuance of all independent dental schools or their conversion into schools for dental assistants, unless they should be sufficiently endowed, suitably affiliated and properly equipped to promote satisfactorily the teaching of modern dentistry, which cannot now be claimed for them.

"(i) Creation of additional dental schools in close affiliation with schools of medicine in universities."

It has been said—and, I am afraid, with some reason—that there is too much talk and too little practical action at our conventions, and in order to assure some action on the part of this Association, at this time. I would suggest that the Committees of Legislation and Education be requested to meet and co-operate with the D.D.C. in a special effort to obtain a uniform standard of legislation and education throughout Canada.

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Dental Health Service*

WALLACE SECCOMBE, D.D.S., F.A.C.D., TORONTO.



MODERN Dentistry has made such a worth while contribution to humanity that she has won for herself an honored place among the learned professions. This contribution, in the main, has included the relief of pain and suffering; the preservation of the masticatory function; the restoration of lost tooth tissue;

* In the absence of the author, Dr. R. Gordon McLean of Toronto, presented Dr. Seccombe's paper.

the establishment of aesthetic harmony and maintenance of hygienic conditions within the oral cavity.

Great and important as undoubtedly these activities are, the modern practitioner *knows* that to confine his efforts to this programme would result in the focusing of his attention upon a localized area of the human body and in failure to appreciate the problem as a whole and the vital relations of one part of the system to another.

Throughout the dental world there is now being given scientific consideration to the intimate relations between local dental disease and general systemic lesions. The members of both the medical and dental professions fully appreciate the dangers of focal infection and know that such foci occur about the roots of infected teeth. But these two professions also know that the teeth of humanity must be saved. And they can only be saved when in a condition of health and free from disease. This is Dentistry's great problem, and its complete solution will rank as one of the greatest contributions ever made to the health, happiness and longevity of the human race.

In the solution of this problem the dental surgeon will continue to play an important part. The laws of health are not always broken in ignorance. Heredity, environment, acquired habits, lead us to transgress many of the laws of health with which we are quite familiar. Mankind pays to the utmost, in disease, for deflection from the health way. But disease will doubtless remain until the "Golden Age" and with it the need for the dental practitioner, who will continue his unrelenting and humanitarian warfare against dental disease by assisting nature to change conditions of disease to those of health, and in re-establishing function through the replacement of lost tooth tissue.

And the dental physician also has an important part to play in the solution of the problem. The modern dentist is not only a dental surgeon but a dental physician, practising dental physiology, and by precept and practice inculcating scientific principles of preventive dentistry into the life habits of his patients and the people of his community.

Let us give to preventive service the honored place it deserves in practice. Its importance demands our best thought. The recognition of this obligation will enable us to feel that in a dental sense we are placing "first things first."

A biological conception naturally leads one to a consideration of healthy function within the oral cavity, with a view to its maintenance and the prevention of dental disease. Fundamentally and always disease reflects within the system a disturbance of physiological balance from the standpoint either of physics or of chemistry, or both.

The dental physician in studying the cause of dental disease is in effect endeavoring to learn why physical or chemical balance, or both,

have been disturbed. This study might be taken up under the following divisions:

RECAPITULATION OF CAUSES OF DISTURBANCE OF
PHYSIOLOGICAL BALANCE.

Firstly—*Physics*.

Div. 1—Lack of Balanced Occlusion.

Class a—Food habits.

b—Uneven wear.

(1) Loss of teeth.

(2) Artificial replacement.

c—Trauma.

Div. 2—Capillary Spaces.

Div. 3—Mucinous Plaques.

Also possibly other factors in plaque formation:

—Bacteria.

—Chemical.

Secondly—*Chemistry*.

—Basicity and Alkalinity.

—Neutralization of acids of fermentation.

Division 1 relates more particularly to pericemental affections, while the other divisions relate themselves more definitely to caries.

A more detailed consideration of these divisions follows.

*Firstly—Disturbance of Dental Balance from the Standpoint of
Physics.*

Division 1—Lack of Balanced Functional (physiological) Occlusion—unbalanced occlusion—occlusal overstress or understress.

Causes—

Class (a)—*Food Habits*. When food habits are changed so rapidly that an organism is unable to make the necessary evolutionary changes, there is a consequent failure of the organism to adjust itself to its new environment. The condition may be one either of over-function or of under-function; the machine is not suited to the work it is called upon to do. Illustrations: (Understress)—Domestication of an animal such as a house dog and its effects upon the teeth. (Overstress)—Animals moved from their natural haunts to a new environment, resulting in such changes in the quality or quantity of available food as to entirely change the life habits of the animal. Present-day revolutionary changes in the food supply of man.

Class (b)—*Uneven Wear of the Teeth*—resulting in both under-function and over-function, and caused by (1) Loss of teeth and consequent drifting of remaining teeth; or (2) Artificial replacement of tooth tissue by metals and other materials of varying density. It is important that all restorations should conform to functional occlusion. In event of difficulty in a restoration in a case of so-called "hard bite," physiological considerations would never suggest the addition of platinum to the gold that it may "stand up" under the strain. Restorations may occlude in the "resting bite," but not while the tooth is functioning. These conditions are predisposing causes of pericementitis. When harder golds are essential more frequent use of abrasive stone is required as a corrective.

Class (c)—*Injury Resulting from Trauma*.

Division 2—Capillary Spaces, as occur at faulty contact points, pits, fissures, and other developmental defects; also clasps or leaky fillings, causing salivary stasis and the retention of fermentable food elements.

Division 3—Mucinous Plaques which are osmotic and cause salivary stasis and a retention of fermentable food elements.

Secondly—Disturbance of Dental Balance from the Standpoint of Chemistry.

In cases of susceptibility to dental caries, carbohydrate material is retained, ferments, and results in acid by-product in greater quantity than the alkaline elements of the saliva are able to neutralize. In other words, there is a lack of chemical balance as between the by-products of fermentation and the neutralizing power of the saliva.

We must learn to apply the fundamental law of physiological balance to our study of the problems of health and disease. Disturbance of balance may be occasioned by too much infection or a lack of the forces of immunity, too much of this factor, too little of that—excess in any direction. It may be functional or nutritional, local or systemic. Within certain limits nature may be able to maintain physiological balance (health), in spite of wrong habits of living. But when the load becomes too great, and we pass over from the health to the disease side, we must study the whole case with a view to eliminating all of the negative factors involved.

When we make such an approach, we commence our study with no preconceived ideas as to the cause of the susceptibility or immunity. The cause or causes may lie in any one or more of many directions. Disease is never a simple problem, and is particularly complex in the mouth, where we have local and systemic factors so closely associated that vicious circles are frequently formed that add to the apparent difficulties of correct diagnosis.

Questions of diet and nutrition are considered as major factors in dental disease because the mouth is part of the alimentary canal and reflects conditions prevailing in other parts of the digestive tract; the teeth are the organs of mastication and are constantly bathed in one of the digestive juices; and dental caries, the most prevalent of all diseases, is caused by the lodgment of food elements in the oral cavity.

It is important, therefore, that we should make practical application of dietetic knowledge to the practice of our profession, with a view to rendering the best possible service to our patients.

The only way to make a satisfactory and scientific study of the dietary factor in dental disease is to chart the case in a way to determine whether the patient's diet meets the requirements as to quantity of food, correct proportion of protein, fat and carbohydrate, sufficiency of the inorganic elements (particularly of calcium, phosphorus and iron), basicity of end-product, body regulator factor, and need of mastication.

It will be found that the vitamin factor will be well cared for if the diet is made up of natural foods that meet all of the above requirements.

(Following the lantern slides Charts and Food Tables recommended for use by dental practitioners in studying and diagnosing cases of susceptibility in practice were distributed to the members and formed the basis for a more detailed discussion of the subject.)



Nitrous Oxide-Plus-Oxygen-Plus-Somnoform Anaesthesia*

E. ROY. BIER, D.D.S., *Winnipeg, Man.*



SOME writers would call this synergism or adjuncts to Nitrous Oxide and Oxygen; no matter what you call it, it has a place in anaesthesia, replacing Ether or Anesthol or Ethylene.

You all know Nitrous-Oxide-Oxygen-Ether combination is a lovely anaesthetic. It gives you all the relaxation you require to do successful surgery, but the reason the Exodontist cannot employ it is because it has a tendency to make patients nauseated in nearly all cases.

Secondly: Ether has many sequelae in nephritics, T. B. Patients, anaemics, etc. In other words, many patients have after effects which are altogether unpleasant or undesirable.

* Read before Canadian Dental Association, Vancouver, 1924.

Now Anesthol is a preparation which corresponds to Ether, containing Ether, Chloroform and Ethylchloride in such proportions that it acts as knockout drops for the patient who is hard to anaesthetize. I believe to administer it successfully you must with caution give it under low pressure. It requires ten to twenty minutes of routine technique to put a patient to sleep; that is too slow, allows too much time for anaesthetic absorption, has the same chemical properties almost as the drugs individually, but the post-anaesthetic effects are somewhat less severe than the individual action of the drugs, as the quantity required is much less and yet the patient feels drowsy or half nauseated in many cases—I would say in almost thirty per cent. of cases. The remaining seventy per cent. require from two to six minutes longer to recuperate in the chair and then fifteen minutes longer out of the chair. I do not mean every case, but generally speaking.

Now I do not know anything about Ethylene except observations I have made from other men's technique in its use. At present I do not believe a standardized technique in Ethylene anaesthesia has been adopted. I know of men who are boosters, and also of men who are knockers; let us wait for a year before forming an opinion, and yet I believe some day it will find a place in anaesthesia.

What I can speak of with experience from my own practice is that by the addition of Somnoform used in a special apparatus attached to my gas machine, I have been able to handle the difficult case, where with Nitrous-Oxide-Oxygen secondary saturation would be required before successful anaesthesia could be maintained. Secondary saturation, as advocated by Dr. McKesson, does give desirable relaxation, but requires the individual attention of the anaesthetist at all times, because of the depth of the anaesthesia, and while I have the deepest regard personally for Dr. McKesson, and can speak with admiration of his technique, I doubt if many Exodontists care to follow the technique, because the Exodontist, as a rule, has charge of the anaesthetic as well as the operation. In order to watch both, the Exodontist does not wish to carry his patient to the same depth of anaesthesia before getting relaxation. *Remember*, please, that I do not advocate the use of Somnoform as synergism in routine technique, but only for the difficult case—the type of individual who is hard to anaesthetize—the athletic, plethoric, alcoholic, drug addict, who requires a fairly longer anaesthetic than a simple extraction. I have used this technique of combined agents in six hundred and forty cases, over a period of two years. Even a special apparatus such as I have attached to my anaesthesia apparatus is entirely unnecessary, but very convenient. Any special knowledge additional to the knowledge required of good Nitrous-Oxide-Oxygen anaesthesia, and also a knowledge of Somnoform anaesthesia, is not required. Any man who can successfully anaesthetize patients with

those agents separately can do better anaesthesia by using them combined. I have in some cases used secondary saturation with success and have no bad after effects, but attending physicians are always alarmed at cyanosis, and so are many dentists and many anaesthetists. Nitrous-Oxide cyanosis is not as dangerous as many believe, but by the employment of the above technique, cyanosis is absent; a more tranquil narcosis is possible; relaxation follows, and as a result more successful surgery is accomplished, as there is no occasion to hurry or leave unfinished work that should be done. It is a nice feeling of confidence to approach a patient who looks hard to anaesthetize and know that you are almost sure to have good anaesthesia, if not immediately at the start, at least sixty-two seconds after breaking your Somnoform capsule or capsules. If you do not believe this, the next time a difficult case presents itself, and you are using straight nitrous oxide-oxygen N_2O-O , take off your nasal inhaler and give Somnoform with a Stark inhaler until your patient is asleep and then quickly revert to N_2O-O and continue your anaesthetic and operation. The chances are you will be pleasantly surprised at the result. If you cannot carry your patient all through the anaesthesia, if it is a fairly long one (meaning ten to twenty minutes), repeat the procedure, if necessary. This is a little inconvenient, as it means changing apparatus, and the change means air inhalation and the crowding of anaesthetic vapor immediately after changing apparatus, so that your patient does not come out of the anaesthetic entirely, but even at that it has to my mind a decided advantage over straight N_2O-O in some cases. When my attachment is made to the Nitrous-Oxide machine, it means more constant absorption of Somnoform in small quantities, as quantities are controllable; it eliminates ingress of air, and makes a smoother anaesthesia.

My records of all these cases are unfortunately incomplete, but that cannot be helped, since in a hospital the patient is often retained for days and any post-anaesthetic effects can be closely checked up, but in an Exodontist's office after the patient claims they feel normal, or nearly so, they are allowed to go home, and the following days' history is not always obtainable; but from the records I have got, while the patient remained in the office, our records are truthful in so far as our observations are recorded, and as such must be accepted for what they are worth.

I have had complete nausea in four per cent. of cases, followed by headache of short duration, from one-half to three hours; I have had partial nausea,—by this I mean a nauseated feeling but not followed by nausea or actual vomiting or headache—in nine per cent. of cases. Remember, these patients had anaesthesias lasting from 6 to 25 minutes; not all had previously been prepared, or abstained from food, as many patients or their dentist or physician demand their teeth out immediately.

Drowsiness lasts from two to sixteen minutes longer than straight Nitrous-Oxide-Oxygen in about ten per cent. of cases, and all other cases show no more, or different, after effects than straight N_2O-O . This can be somewhat lessened, but was purposely not done, for retaining data. How can it be lessened? By the forcing of direct oxygen at the completion of the anaesthetic, and washing out the lungs from the anaesthetic. In nearly all cases where it seems necessary this technique should be followed. *Do not* force it too fast at the start or your patient becomes unduly excited, due to oxygen stimulation, and the cycles of the circulation do not get the same chance for the oxyhaemoglobin to carry oxygen into the tissues; but as the patient is almost awake then force oxygen into the lungs under pressure. I have had many a grateful patient shake hands with me and thank me for the nice anaesthetic they have had in my office, and relate some history of a wild time they previously had, either with straight N_2O-O or Ether or some other anaesthetic. I do not intend to impress you that I am complimenting myself, but merely to inform you of the success attending this technique. And there is not a person who cannot get these results if he understands anaesthesia. As yet I am not married to this technique; by that I mean if I can find something still superior to this technique I shall employ it, but first of all I must be convinced of its merits.

Too many anaesthetists always keep the same old technique for all patients, and that is why the science of anaesthesia is not making faster progress, but progress in humanity in any branch or subdivision is slow, and anaesthesia is perhaps making greater strides lately than any other subdivision in medicine or dentistry. Then again, all lines of activity have men engaged in those lines who are faddists and are always chasing rainbows or new methods, or devices; these are more or less dangerous too. What I am telling you is nothing fancy; it is no abnormal stunt or passing fancy; it is a plain fact or truth that will bear investigation, and keep you, as well as your patient, from standing on your head when in the act of removing teeth. I have witnessed, as well as heard of, many funny positions that the patient and dentist assumed during the removal of teeth from an obstreperous patient under Gas-Oxygen Anaesthesia. This technique with premedications does away with an obstreperous patient; this technique without preliminary medication is a wonderful advance upon some of the methods employed in this present generation.

To my mind rigidity under Gas-Oxygen is a bad handicap, because the muscles of mastication become so rigid that successful surgery in these cases is very difficult. *First*: Because it is hard to properly open the mouth even with a gag, and this means lack of room, or field of operation too small; *Secondly*: rigidity means muscular symptoms of insufficient anaesthesia, but other symptoms such as respiratory or

cardiac symptoms in some cases might caution us to deepen the anaesthesia with safety, providing we are using Nitrous-Oxide-Oxygen. In most of the above mentioned cases very little oxygen is tolerated at all. (I mean the athletic, plethoric, alcoholic or drug addict). The addition of Somnoform after the mucous membranes of the respiratory passages have become anaesthetized so that no odor is detectable by the patient, does away with this rigidity and allows after sixty seconds or less of absorption the immediate use of oxygen (from seven to ten per cent. or more) keeping the patient nice and pink all the time. If you feel your narcosis is about right give only seven per cent. oxygen; here is where you must understand anaesthesia; if your narcosis is a little deeper than you anticipated, use the direct flow of oxygen straight into your bag, and make the first breath a real oxygen mixture.

I never get scared, and my patients probably don't either. That is due to confidence. You must know something about the patient and have mastered the essential knowledge that goes with good anaesthesia, and you are well away to a good start on a pleasant and successful adventure.

When giving an anaesthetic with closed apparatus, with Somnoform, remember your patient must have oxygen, and will tolerate oxygen and stay asleep. How much depends upon the dosage of gases. How much oxygen depends upon your patient. How soon? Oxygen? Immediately your patient has gone to sleep. How delivered? That depends upon the depth of anaesthesia—either by direct flow or regulation of percentages. Perhaps you had better use the direct flow to fill up your rebreathing bag with oxygen. By that I do not know how much nitrous oxide is in the rebreathing bag,—how much oxygen you will require to get a certain percentage. How much does your patient need? How much knowledge have you got?

DIFFICULT CASES.

Let me point out this fact in using a combination. Supposing you start to use N_2O pure, and your patient has taken a large quantity and you are afraid of further dosage, although your patient seems awake, or nearly so, and has symptoms of cyanosis. These are cases where I implore you to use straight Somnoform on them until they are asleep, since you do not own such a device as I had ordered and made specially. Now when you have obtained a good narcosis with 5 cc. of Somnoform, switch quickly to your nitrous-oxide machine and immediately give about 10% oxygen until symptoms tell you to reduce or increase the oxygen. If an increase is indicated, use direct flow into your bag. If you have used 10 cc. of Somnoform, allow patient to breathe air and start to operate. Now you will have a few minutes—2 to 5 minutes anaesthesia anyway, with such a dosage. Allow the patient to breathe

as much air as you think he requires, then, without allowing the patient to wake up, switch back to your nitrous-oxide machine again and give as if you had never used Somnoform at all. Just the same technique as N_2O plus O . You will notice the difference between switching back quickly, etc., depends on the dosage and depth of narcosis. What have you got now? You have a patient *safely* asleep; not too deeply anaesthetized; no cyanosis; and a relaxed patient. Perhaps he is snoring heavily and perspiring freely, but not a dangerously deep anaesthesia. The after effects are never serious in my experience. I find that most cases feel actually better after such a dosage than with secondary saturation prolonged.

Oxygen is our safeguard to life, and when we are approaching muscular relaxation and surgical anaesthesia with straight nitrous oxide (in such difficult cases which require large dosages) without the use of oxygen, we are approaching a stage of asphyxiation which is dangerously near the fourth stage of anaesthesia. Now in these difficult cases the patients will not tolerate oxygen, so that we have to use the straight nitrous oxide or add agents which will allow us to use oxygen.

The plethoric-athletic type is the difficult refined patient, often, and he demands an anaesthetic which will not make him sick like ether. What are you doing for him?

Many alcoholics you can handle by having them load up with their own joy-water, and when they arrive with their nerve all alcoholized they make good patients for block anaesthesia. All you need is a bit of psychology, or mental science, to keep the patient good natured, and he will allow you to remove the teeth or bone, etc. Many alcoholics who demand to go to sleep, who look like difficult cases or anaesthetic risks, can be induced to take local or block anaesthesia. However, if local conditions indicate a general anaesthesia, I do get beautiful anaesthesia sometimes with N_2O and O , and co-operation of the patient. If I don't, I add Somnoform and put them to sleep; then I have very little trouble.

STRAIGHT NITROUS-OXIDE-OXYGEN ANAESTHESIA.

Failure to induce anaesthesia may generally result from lack of knowledge, underdosage. There are three stages of anaesthesia. The third stage is surgical anaesthesia, and this again is subdivided into three planes; with some patients operations can be successfully carried out in the second plane of the third state of anaesthesia; in others, where secondary saturation is an essential, the third plane of anaesthesia must be reached. Then oxygenation of the patient by direct flow is directed to keep the patient alive, and also to keep them from passing into fourth stage, which is usually next door to death. So the anaesthetist must understand his apparatus, his anaesthesia and his patient.

The common cause of complaint lies here—lack of knowledge. Knowledge is obtained by experience under proper instructors. The path of danger lies somewhat ahead of us if we do not quickly observe these symptoms, as the action of the drug we use is so rapid. Do not misunderstand me, Nitrous-Oxide-Oxygen, from a chemical standpoint, is considered the least dangerous of all anaesthetics; but from a clinical standpoint is more rapid in absorption than either ether or chloroform and hence must be thoroughly understood.

Let us first consider the apparatus. The Heidbrink, McKesson & Clark machines are all high pressure machines, while the Gwathmey, Forreger, Ecker, and Connell machines are low pressure machines; each manufacturer to-day claims a superiority for his product, and I am not in a position to recommend any one to the exclusion of all others.

For convenience of administration I am partial to high pressure apparatus, because the induction period is about a quarter the time of the low pressure machines, and a nervous patient who has perhaps not received preliminary medication is more easily controlled.

The weakness of human nature always waits for miracles to happen. We get tired of routine which is ordinary; we always look for methods which are singular or spectacular. The normal man leads a normal life; the planets revolve in the normal plane. By this I mean, the common way of things is after all the best. It is the superior arrangement of the universe, and so the miracles are abnormal, compensate for abnormality; and so if you have a normal patient, then uncommon methods need not be resorted to in giving anaesthetics.

The patient quickly follows instructions, breathes normally through the nose, does not take long deep breaths, tell them this is an ordinary sleep. Don't instruct them to take a deep breath, unless they have particularly shallow breathing; ordinarily, tell them to breathe naturally, then if excitement or fear prevents them from doing this, and they do abnormal stunts, try and make them act naturally in the quiet of your own office this is easier accomplished than elsewhere.

The A.B.C.'s of anaesthesia should be in the anaesthetist's brain. He should co-ordinate the normal points of symptomatology of anaesthesia, divided under the headings of different individuals, *children* and *adults*, men and women, anaemics and plethorics, normal and abnormal individuals.

We must first learn the primary processes of mathematics, and so we must master the primary needs of normal anaesthesia. *Next*, we should understand the chemical and therapeutic actions of the agents or drugs we administer; and next, we should be thoroughly acquainted with the apparatus we are working with.

Children are harder to anaesthetize than adults because of fear, and

lack of co-operation. Crying produces mouth breathing; mouth breathing means inhalation of air; air means 79% Nitrogen which fills up space and makes for uneven anaesthetic mixture during induction period, which might cause a pushing of anaesthetic vapor, under pressure, which could overdose the young patient.

I would rather give Somnoform with a face inhaler for any struggling scared child. Important point to remember: children should not be forced under gas pressure. This is apt to produce anaesthetic shock. Children are susceptible to anaesthetic shock when closed apparatus is used, and too much pressure used.

I would, in normal cases, *suggest* something pleasant and keep the child's mind on something else: a bunny story, or a child's motion picture, or dolls, etc. I would ask the child questions to make him talk, and I would lead his conversation into channels upon which he was interested, every once in a while reverting to instruction of the anaesthetic; finally when I would apply the inhaler I would ask for his co-operation.

Induction Period.—Child should not receive over $2\frac{1}{2}$ or 3 gals. per minute with 5 to 7% oxygen, for a few minutes, then reduce oxygen until anaesthetized, and when completely asleep give as much oxygen as required. That technique of giving oxygen at the start of the anaesthetic does away with jactitation in about 75% of cases, which is so common under Nitrous-Oxide-Oxygen anaesthesia.

Chair Adjustment.—Have the chair almost horizontal—this prevents slipping out of the chair—with the arms of the chair adjusted close in just before operating. If at all possible do not allow parents to remain in the operating room. Try to convince them that you are carefully guarding the welfare of the child, and have them leave the surgery.

Crying, under Nitrous-Oxide, does not necessary mean that the child feels any pain. This does happen occasionally, and the child not feel anything or even remember the fact that he was crying.

For children have the expiratory valves wide open, so as to wash the lungs with the proper amount of anaesthetic and reduce the pressure. Most anaesthetists wish to add a small quantity of ether in children to allow for relaxation, then shut off the ether and increase the oxygen, keeping the color good at all times.

Shock in Children.—All scientists agree that children are more susceptible to shock than adults.

Preliminary Medication and mental suggestion may be necessary in some patients. Anaesthetic Shock may be produced in three ways:

(1) By giving an overdosage.

(2) By giving too light an anaesthetic (under dosage).

(3) By failing to keep an open airway.

Corrections.—For overdosage—force direct oxygen.

Underdosage—shut off oxygen. Keep airway open by pulling mandible forward, pulling tongue forward with tongue depressor or Connell airway. Use packs with a strong string attached, so that no throat packs are inspirated into airway. Packs prevent foreign particles or blood from falling into the throat, or being drawn into throat by inspiration. The space between the external orifices and the epiglottis has been called the "death space" because this space causes more trouble to anaesthetists than all other troubles combined.

Shock and death are more often caused by a closed airway than almost in any other way. This is caused by swelling of the mucous membranes, also by the relaxation of the muscles of the tongue, and the tongue dropping back and closing of the glottis.

Tongue Stertor may be often prevented by having the head placed sideways, either to the right or left side. The patient's head should be supported so that no effort is thrown on the neck muscles. (Chair adjusted by raising back).

Try and Remember This.—Artificial airways are a very necessary part of an anaesthetist's equipment—Hewitt's, Connell's, Ferguson's, etc. If the forcing of the Oxygen under pressure should not revive the patient, a child should be quickly inverted, grabbed by the heels and held upside down; swing gently back and forth and have assistant slap the patient on the back, also massage abdominal muscles, which spreads the circulation. In shock the abdominal viscera have a loss of internal abdominal pressure. Now the viscera are capable of holding nine times the whole quantity of blood in the body, and so it is necessary to distribute that back to the heart and brain, etc.

Inversion supplies the brain with blood, but this is no good unless you have an open airway. Inversion spreads the circulation from the abdominal viscera back to the heart.

Inversion Plus Swinging mechanically expands and contracts the chest like a bellows; this allows air to rush into lungs. It also distends the heart and intercranial vessels.

If the patient happens to be an adult, stand up on the dental chair and grab by the knees instead of the heels. This should be kept up for at least six minutes, and done as vigorously as possible.

Hypodermics of camphor and oil, or strychnine sulphate in "Greeley's units" may also be aids.

Lastly: The stretching of the sphincter ani muscles might be resorted to, if necessary. First respiratory movements would perhaps be so shallow as not to be noticeable, but they would soon become spontaneous,

and natural breathing follows. Giving of enema (warm water—saline preferred) raises the blood pressure. Bandaging the abdomen fairly tightly, but not so as to interfere with free respiratory movements, also raises the blood pressure.

Trauma under tooth extraction is a negligible quantity.

Adults Technique.—All I have said about suggestion and mental equilibrium is also applicable to the adult. The great trouble here is insufficient anaesthetic. Give 4 or 5 gals. Nitrous-Oxide for about one minute, without oxygen. Addition—then add 7% oxygen until patient is asleep. Then add 7% oxygen, or as much as required.

Anaemic Patients tolerate more oxygen than normal patients.

Plethorics require little or no oxygen until they are asleep.

Important above all things is to have a nasal inhaler adjusted or packed so as to exclude all air and have it non-leaking.

Next of Importance.—The expiratory valve—in cases of deep breathing and patients normal. Patients of an athletic type—the expiratory valve is nearly closed so as to increase the pressure, and produce greater re-breathing, giving a more concentrated Nitrous-Oxide mixture, and the lungs are not emptied of too much carbon dioxide, which produces a condition of “*acapnia*”.

However, too much and too long rebreathing results in post-operative discomfort and headache, and it also raises the blood pressure distinctly at the beginning of the operation. If a patient has an already high blood pressure this must be watched. In cases of arteriosclerosis the blood pressure drops considerably when the expiratory valve is raised after a three-minute concentration has been carried out. Then flush the patient with oxygen only for a moment and reduce the pressure, and then regulate the amount of oxygen necessary to keep the patient asleep.

Cyanosis.—This blue condition of the patient is what scares most anaesthetists. However, Nitrous-Oxide cyanosis is not as dangerous as Ether or Chloroform cyanosis, but most physicians do not recognize this, and for this reason alone are not favorable to the use of Nitrous-Oxide. I have seen patients cyanosed for two hours under Nitrous-Oxide without any post-operative effects. However, cyanosis is an index to the depth of anaesthesia and must not be sneered at. See that the airway is cleared; it might mean an obstructed airway; determine whether the patient has labored or stertorous respiration. I am more alarmed at a death-like pallor than cyanosis, as this is followed by respiratory paralysis if carried too far. Death-like pallor means a drop in the blood pressure; quickly withdraw the Nitrous-Oxide and give sufficient oxygen to get your patient back to normal without waking the patient up altogether; then re-anaesthetize them, and if I am not mis-

taken pressures can be kept low, air valve (expiratory valve) can be kept fairly high, rate of flow can be reduced to three or four gals. per minute, and oxygen percentage raised. If necessary add a little Ether or Somnoform. However, if cyanosis is the bugbear to keep you from using it, and you demand a pink patient with the addition of oxygen at all times, add Somnoform as I will demonstrate the addition of Somnoform in my clinic. This synergist can be almost completely washed out of the patient's lungs by direct oxygen flow at the completion of the anaesthetic.

Pressure in rebreathing bag is important. Most people do not emphasize this point; but it should at all times be taut or expanded during expiration and it should not be entirely emptied during inspiration. McKesson & Clark have bags that can be regulated and hence are an improvement over the others where this is not obtainable.

McKesson points out the largest percentage of CO_2 from expired gases is the least part of the expired gases.

Gwathmey says the pressure in the rebreathing bag should be so regulated that the pressure under the mask does not exceed 2 mm. of mercury.

Mucus in Throat and Mouth.—This is usually most noticeable under Ether anaesthesia, but it is also noticed under Nitrous-Oxide, and the mucus should be wiped out by the use of gauze and artery forceps. It is usually noticeable under light anaesthesia, and as the anaesthetic becomes deeper it disappears.

Sweat glands usually become quite active during presence of cyanosis or deep anaesthesia, which is of the cold perspiration type, and this subsides with lighter anaesthesia and more Oxygen addition.

Warmed agents reduce the quantity of saliva and mucus, and also eliminate excitement to some extent.

Laboratory Experiments showed that animals killed by warm agents did not have convulsions before death, and cold anaesthetics caused convulsions and death in 12 to 28 minutes sooner than warmed anaesthetics.

Reflexes: Corneal.

Respiratory.

Circulatory and Nervous system.

In the third stage of surgical anaesthesia under Nitrous-Oxide, when pulse is full and regular, breathing is automatic and regular. The lid and Corneal reflexes are abolished; the pupils are usually dilated and the eyeball is fixed, slightly rolled upward and inward, and the pupil slightly dilated. Once in a while we meet a patient where the muscles are not relaxed, the eyeball slightly rolls and the pupils are not en-

larged, but judgment of the regularity and depth of the breathing is the surest guide to the anaesthetist. The size of the pupils may vary with the preliminary medication.

Reflexes.—The sequence in which the parts of the nervous system are involved according to physiologists and anaesthetists (both American and English investigators) are in the following order:

- (1) The cerebral cortex is involved;
- (2) The cerebellum and basic ganglia;
- (3) The sensory centres of the spinal cord;
- (4) Cerebro-spinal motor tracts;
- (5) The respiratory and vasomotor;
- (6) The cardiac centres.

(See here that respiration precedes circulation, and it is more important to watch the respiration than the circulation.)

- (7) The inhibition of all centres, and death follows.

With Nitrous-Oxide the special senses are abolished in the following manner: sight is lost before hearing, and taste persists longer than either of these. Hearing is the first to reappear, and silence should be maintained before the patient goes to sleep and during the waking stage—loud noises tend to excite the patient. Some patients have died after a few inhalations of chloroform at the beginning of an anaesthetic, before consciousness was lost (probably psychic in origin), and here is where preliminary medication is valuable in these neurotic patients. Circulatory reflexes are observed during a rapid rise or fall in blood pressure. Respiratory reflexes are noticeable, such as coughing, retching and difficult breathing, and likely to occur in lighter anaesthesia; a few words kindly spoken, reassuring and instructing the patient, are here indicated.

Men are harder to anaesthetize than women, because they smoke and drink more. More men are addicted to drugs than women; athletes are harder to anaesthetize; outdoor workers are harder to anaesthetize than sedentary workers, and most women have sedentary occupations.

Men are not so susceptible to suggestion, become more easily excited, because they have more hazardous occupations. They weigh more, have more avoirdupois and require more anaesthetic than a smaller person; are more often plethoric or full-blooded than women. The athlete, alcoholic and drug addict, all should have preliminary medication, viz.: Chloretone 5-15 grains $\frac{1}{2}$ to 1 hour before, morphia $\frac{1}{6}$ grain $\frac{1}{2}$ hour before.

TREATMENT BEFORE OPERATION.

- (1) Premedication—Chloretone or Morphia.
- (2) Lack of food—miss one meal.

- (3) Elimination of bowels—(enema).
- (4) For bleeders—give 80-150 grains Calcium Lactate in 10 grain doses over a period of 2 or 3 days before operation.
- (5) If the above is impossible, inject 2 cc. of P. & D. Haemostatic Serum intramuscularly—one hour before operation.
- (6) Corsets and waistbands *must* be loosened.
- (7) The bladder should be emptied.
- (8) A capable nurse can often mentally reassure the patient that all will be well with the patient, and do much to assist the operator.
- (9) In a given history of acidosis give NaHCO_2 , $\frac{1}{2}$ teaspoonful in wine glass of water 3 times a day before meals on day previous.
- (10) In a given history of kidney involvement, consultation with the physician is important, and too many teeth should not be removed at one sitting.
- (11) In goitre cases preliminary medication is advisable; a Connell airway should be on hand during operation, and stomach and bowels *should be empty*. Airway is introduced before closure of the normal takes place. There is a danger here of regurgitated food blocking the airway. Free administration of drinking water day before is of assistance.

FEAR AN IMPORTANT FACTOR.

Animal experiments show where animals were frightened and not hurt, that they exhibited brain cell changes, some were damaged; rapid heart, accelerated respirations, prostrations and tremors, as well as a rise in temperature. This shows a form of physical exhaustion due to fear; patients exhibit similar tendencies.

After taking morphia patient should lie down and rest for half an hour. It lessens the amount of anaesthetic, reduces vomiting, reduces liability to shock, and eases post-operative pain. Contra-indications of morphia only in acute or subacute nephritis, where the reflexes are not to be abolished and there is danger of coma. These patients are rare in a dental office.

TREATMENT DURING ANAESTHESIA.

- (1) Have chair in reclining position, keeping the head in line with the heart.
- (2) Keep respiration normal, if possible, by Oxygen regulation.
- (3) Keep open airway.

- (4) Have gauze packs in mouth, which somewhat prevents mouth breathing.

False Breathing.—Sounds of respirations indicate narcosis, but other reflexes are not abolished; check up and do not start to operate, as it will produce excitement and uneven anaesthesia. Muscular twitching or jactitation is a sure sign of too deep a narcosis—add more Oxygen.

Have Gas Warmed by electric warmer, or hot water bag placed over machine. Respiration aids the heart in producing blood pressure in the human subject; intra-pulmonary pressure is increased during exhalation, aiding the heart to force the blood out of the chest; during inhalation the blood is drawn out of the veins leading into the thorax, at the same time the capillary resistance in the lungs is reduced so the right heart can more easily force the blood to the left side; when exhalation begins the lungs squeeze out the excess blood into the left heart, increase intra-pulmonary pressure by 5-10 mm. mercury.

Briefly, the heart is the pump, the arteries admit the blood from the heart by distention. The arterioles are shut-off valves controlling peripheral resistance and determine the volume of blood to pass through a certain group of capillaries; the capillaries and veins act as a return tube to the heart and lungs.

POST OPERATIVE TREATMENT.

- (1) Do not raise the patient too quickly.
- (2) Do not allow patient to swallow blood; insert gauze or cotton.
- (3) Allow patient to rest quietly on a couch if necessary.
- (4) If patient still feels nauseated after 15 minutes, administer Bromo-Seltzer, 1 teaspoonful in small glass of water for ordinary cases.
- (5) If patient feels chilly, cover with warm blanket or robe.

Pregnancy is not a contra-indication for administration of N_2O .

Dangers of abortion are greatest at the beginning of the third and seventh month—not much danger if the muscles of the uterus are not allowed to contract and the patient is not allowed to become cyanosed. Most patients tolerate a larger quantity of Oxygen at this period.

Alcoholics.—With one ounce of whiskey in 8 ozs. of saline, per rectum, given one hour before, plus $1/6$ th grain of morphia one-half hour before, the anaesthetic acts more satisfactorily. Ether by drop method is better than a closed method, as these patients suffer from Oxygen deprivation.

Pleurisy and Empyema—abscess of the lung—use N_2O and Oxygen (never use Ether)—plus morphia $1/6$ th grain, or chloretone—one hour before.

Report of the Oral Hygiene Committee, Canadian Dental Association



ALTHOUGH hampered by lack of funds, a few things have been accomplished by your committee by working in conjunction with other agencies.

The American Academy of Periodontology prepared two excellent bulletins, entitled "Children's Teeth, how to use and keep them," and "How to build strong teeth." After some correspondence they very kindly granted the Canadian rights of publication to this committee. Not having sufficient funds to print them in the large quantities necessary, representations were made to the Canadian Red Cross to print and distribute one, and to the Dominion Department of Public Health to adopt the other. As the Canadian Red Cross already have a folder on the teeth, prepared for them by this committee, they have not yet taken action, but it is hoped they will do so as soon as their present supply is exhausted. The Dominion Department of Health accepted quite readily, and only a few weeks ago sent me wrappers, which, through the kindness of the Ash-Temple Company, have been addressed to every dentist in Canada, and returned to them. In due course a supply will be sent out to the profession, and copies sent to anyone who will take the trouble of writing for them. We hope also to distribute some at this meeting.

The Ontario Department of Public Health submitted to this committee a folder on the teeth, for revision. After rewriting it, they have adopted it and printed and distributed large quantities.

Some work has been done in connection with preparing a catalogue of slides for use in giving talks to the public. Fifty slides have been collected and arranged in a series of two lectures, with suitable outline texts. The plan was for the Association to print a catalogue, reproducing cuts of the slides, and opposite each the explanatory text, together with information where they could be secured and at what cost, the Association to undertake the cost of printing and distributing these catalogues. Arrangements were then to be made with optical houses at different centres throughout the Dominion to carry these slides in stock for either rental or purchase by any dentist who desired to give a talk in his community. It will cost \$300 for cuts and printing for 1,000 of these catalogues, and as this committee had not sufficient funds, representations were made to the Ontario Oral Hygiene Committee, who voted \$200 for this purpose, they to receive 600 copies and look after their distribution in Ontario. This Association would require to put up \$100 for the remaining 400 copies, and I would strongly recommend that this amount be voted for this specific purpose.

I think this would be a sufficient number to print, as they need only be sent out on request to those specially interested or about to deliver a lecture, and, when exhausted, the slides and subject matter could be revised. These slides and other material were shown as part of the Health Exhibit of the A.D.A. in Cleveland last year, and were also exhibited at O.D.A. in Toronto this year.

The oral hygiene movement has been very active in Ontario. The large graduating classes of the last two years have been active in stimulating interest in the communities where they started practice, and the demand for slides, charts and other material for use in giving talks has been very heavy. The Ontario Committee prepared a very excellent little bulletin, entitled "Outline Lectures for use by the dentist in giving talks to the public," which has been widely distributed in Ontario, and numerous requests for it have come from other parts of Canada and from the United States. A supply has been secured for distribution at this meeting. The Ontario Committee have also purchased a moving picture film, entitled "Tommy Tucker's Tooth," which is available for use. The Ontario Government are taking a keen interest in the oral hygiene movement, and have promised to appoint a Director of Dental Services at an early date. The following letter from the Deputy Minister of Education for the Province tells of the work already carried out:

"I am directed by the Minister of Education to acknowledge the receipt of your letter of July 21st, and in reply to state that this Department has exercised such supervision as has been presumed necessary over the dental service in the schools of the province through the Division of School Hygiene, under the direction of the Chief School Medical Officer, for the last three years. As you are undoubtedly aware, legislation was brought down at the last session of the Legislature, permitting the transfer of such supervision to the Provincial Department of Health, under regulations laid down by the Department of Education. This it is planned to do at an early date.

"Dr. Phair, Chief School Medical Officer, tells me that the school boards and local health authorities in the smaller centres are taking a very keen interest in the question of oral hygiene, and that the number of municipalities throughout the province having dental supervision of the school children has more than doubled in the last three years.

"I have the honor to be,

"Your obedient servant,

"A. H. U. COLQUHOUN,

"Deputy Minister of Education."

A report outlining the very active work being carried on in Nova Scotia is included as follows:

REPORT OF THE ORAL HYGIENE EDUCATIONAL COMMITTEE,
NOVA SCOTIA DENTAL ASSOCIATION.

"Wolfville, July 15, 1924.

"Mr. President, Ladies and Gentlemen:

Since the last annual meeting your committee has held several meetings and conducted considerable correspondence with regard to public dental health, and is pleased to report increased interest and activity in this connection among the public health organizations.

Dr. C. S. McArthur, Truro, was appointed by the Government as a permanent lecturer on preventive dentistry on the staff of the Normal College, and has delivered the first course of lectures under this arrangement.

Several applications for literature, lantern slides, etc., were received during the year, and lectures given by Drs. H. W. Black, A. C. Mayford and M. E. Morrison.

Among the organizations especially interested in our work are the Federal and Provincial Departments of Health, Red Cross Society, the Halifax Relief Commission and the American Academy of Periodontology.

Negotiations with a view to reprinting the bulletins published by the American Academy of Periodontology are about completed, and it is expected that an ample supply can be obtained on application to the Federal Department of Health at Ottawa, which has adopted one of them as an official publication.

Your committee has had considerable correspondence since October 25, 1923, in this connection, first approaching the Red Cross Society, then in turn the Oral Hygiene Committee of the Canadian Dental Association, the Halifax-Mass. Health Commission, and the Federal and Provincial Departments of Health. The American Academy of Periodontology, from which 100 copies of each bulletin were obtained, was also approached.

Arrangements were finally made with the Federal Department of Health by members of the Canadian Dental Association in Toronto, and, although your committee had been promised funds by the Mass.-Halifax Health Commission to reprint several thousands of the bulletins, it was considered desirable to await the reprinting by the Department of Health at Ottawa. Your committee is now awaiting quotations before ordering a supply, and while they were printed by the Government for distribution to the dentists, they will be listed with other publications of the Health Department for distribution to the public on application to the Department at Ottawa. Local committees will also be able to obtain a supply on application to either the Federal or Provincial Department of Health on payment of the necessary fee.

Your committee has suggested to the C.O.P.A., as well as the Oral Hygiene Committee of the Canadian Dental Association, the national distribution of these bulletins, and the establishment of pre-school age dental clinics throughout Canada. As you will be informed to-morrow by your essayist, Dr. A. C. MacKenzie, who has the honor of being the first pedodontist in the first preschool age dental clinic in America, the results obtained in this clinic fully justify the claim that the pre-school age dental clinic is an ideal method for the prevention of the decay of the teeth.

We are also pleased to report that full-time dentists have been appointed in Halifax and Sydney, and that the Mass.-Halifax Health Commission has arranged to appoint a full-time pedodontist in the preschool age clinics of the health centres in Halifax.

The Provincial Red Cross Society, in co-operation with local bodies, has conducted travelling clinics in Halifax and Yarmouth Counties. The dental services, which are a very important feature of these clinics, have proved very satisfactory from a practical as well as an educational standpoint."

The Chairman and Secretary of the Oral Hygiene Committee of the Canadian Dental Association have co-operated with others in the formation of the new Canadian Dental Hygiene Council, which, when it is fully organized and functioning will, we believe, take over most of the duties of this committee. I would, therefore, recommend that the present committee be reappointed, as they are closely in touch with what has already been done in connection with the new organization and could, therefore, carry the plan through to completion.

I would ask this Executive Council to pass a motion approving the C.D.H.C. and appoint the representatives to which it is entitled, viz., the President and Secretary and such other persons to the number of nine, one representative from each of the Provinces of Canada.

EDMUND A. GRANT,

Secretary, Oral Hygiene Committee, Canadian Dental Association.

* * *

Report of Canadian Dental Research Foundation

 N presenting a report covering the activities of the Foundation during the past two years, I would like at first to refer to the meeting of the Board of Directors held at Toronto in 1922. The Executive have endeavored, as far as possible, to comply with the recommendations made at that time. Bulletin No. 7, on Dr. Box's latest work, was mailed last June to every dentist in Canada, and it is intended to do this with all future bulletins, except those purely of interest to the research worker. If sufficient funds can be secured, we hope to send out revised copies of the most practical

of the previous bulletins, especially those relating to full and partial denture construction.

At their meeting in 1922, the Dominion Dental Council voted the sum of \$600.00 to the Foundation, stipulating that it be used in aiding research work in the Dental Colleges of the agreeing Provinces. After correspondence with these Colleges, it was decided to divide this sum equally between Dalhousie Dental College and the Royal College of Dental Surgeons, as the others intimated they were not yet ready to undertake research work. The Foundation advised the Dominion Dental Council of this apportionment, and are looking forward with the anticipation of receiving this grant in order that it may be made available for this purpose and thus carry out the intentions of the Dominion Dental Council.

Two bulletins have been issued since the last meeting. No. 6, "Combinations as an Aid in the Discovery of Fundamentals in Dentistry and Other Sciences," by W. E. Cummer, revised by Professor G. R. Anderson and R. J. Reade. As this bulletin is of interest chiefly to the research worker, it was not given general distribution.

Bulletin No. 7, "Studies in Periodontal Pathology," H. K. Box, including a study on the mechanics of occlusion by Professor G. R. Anderson. This bulletin covers the latest work of Dr. Box and has attracted widespread attention. A copy has been sent to every dentist in Canada, and as a large number of requests have been received from the United States and other Countries, copies are supplied to them at a charge of \$1.00 per copy to cover the cost of printing.

Three more bulletins are in the course of preparation:

No 8—"Articulation for Partial Dentures with the Snow Apparatus and the Wadsworth Incisor Guide," by W. E. Cummer. This is a very practical bulletin, and it is intended to send it to every dentist in Canada. It is hoped to have a supply available for distribution at this meeting.

No. 9 — "Combinations which occur between the Upper and Lower Six Posterior Natural Teeth, in Occlusion," by Dr. W. E. Cummer. This bulletin is supplementary to Number six, and as it is only of interest to the Research worker, only five hundred copies will be printed and supplied to those interested on request.

The total subscriptions to the Trust Fund now amount to \$15,204.-51, of which \$13,639.51 is paid up. Some recent subscriptions are:

British Columbia College of Dental Surgeons	\$ 100.00
British Columbia Dental Association	100.00
Alberta Dental Association	200.00
Subscriptions from Saskatchewan dentists	832.00
Manitoba Dental Association	200.00
Ontario Dental Association	1,000.00

Respectfully submitted,
R. GORDON MCLEAN, *President.*

Report of Committee on Foreign Relations

Secretary's Note.—This report did not reach the office until after I had left for Vancouver and consequently was not presented to the meeting, and the contents have not been acted upon. Inasmuch as it seems a matter of importance and interest to the profession, it is included in these proceedings.—E. A. G.



HIS report is in the nature of a statement of the position of Canada in relation to other countries and a suggestion for the future.

International dental relations in Canada are in the same uncertain and complex position as many other international matters. Countries outside of Great Britain and even those within the Empire are not very certain as to the exact position of Canada in relation to Great Britain and other countries. This is exemplified in the representation at the Peace Conference and the League of Nations and now as to the appointment of a plenipotentiary at Washington. If in such matters the position of Canada is not clear, there is excuse for the uncertain relations in Dentistry. The Federation Dentaire Internationale is not sure whether it should accept representatives from Canada directly or through dental organizations in Great Britain. Of recent years, direct relations have been instituted without any corresponding response from Canada. Canadians attending such international meetings have paid their country's dues and often carried no authority from the Canadian Dental Association, but carried authority from provinces and local bodies. While this situation exists in our nationhood our kind and good friends to the south of us, with their usual generosity, have practically accepted Canadians into membership in the American Dental Association, thus for international purposes suggesting, at all events, that as a nation Canada does not exist, but is a part of the United States. Internationally, dentistry in Canada has not passed the Colonial stage, while politically, she stands as one of the Nations of the World.

Your committee's Chairman would suggest (a) that the Council appoint representatives to the Federation Dentaire Internationale meetings and the secretary and president (b) be empowered to prepare such documents and credentials as will assure acceptance, so that Canada may never be unrepresented, (c) that application be made to the Dominion Government to send official representations to all International Dental Congresses, (d) that representatives be selected at the proper time to attend the Congress in 1926, (e) that Canada pay her share per dental capita for all international dental affairs.

Canada, as the oldest officially recognized dentally organized country in the world, is hiding her light under a bushel by provincialism. She has politically reached nationhood. Dentally she should take her place among other nations.

Golf Tournament

 HE Canadian Dental Association held their Golf Tournament on Friday, August 8th, 1924, at the Vancouver Golf and Country Club. About seventy-five members competed and the Ladies' Competition was held on the same day at the Shaughnessy Golf Club; some twenty-five ladies competed.

The members were divided into two flights, namely, 1st, those with handicaps of 20 and under. This competition was won by Dr. R. Mel. Bagnall with a net score for 36 holes of 132, or a gross score of 164. Drs. Oliver Leslie and Frank Quinn tied for second, with a net 134. Dr. Leslie had the best gross score of the meet, with 156 strokes.

The second flight was won by that Grand Old Man from Victoria, Dr. A. J. Garesche, with a net score of 132, or a gross score of 176. Dr. Elwood Cox was second and Dr. H. Wood third. Dr. Frank Hergert, of Seattle, won the booby.

Mrs. Mel Bagnall kept the family ahead by winning the Ladies' prize, with Mrs. Cox second.

The Association wishes to thank the donators for the beautiful prizes they gave, as follows: Ash-Temple, Club Bag (Hand); the L. D. Caulk Company, Jaeger Sweater. These were donated for the first flight. The S. S. White Company, a cup; the British Columbia Dental Association, a sweater. These went to the winners of the second flight. The "booby" prize was a part of an old-fashioned toilet set. The Pepsodent and Phillips' Companies donated the prizes for the ladies.

The Tournament was followed by a fine banquet. Dr. W. J. Bruce, toast master. Everybody enjoyed themselves with the abundance of good eats and drinks. All agreed the day was a merry one after the previous days of learning.

J. S. BRICKER.

* * *

Report of Secretary-Treasurer, Canadian Dental Association

August 4, 1924.

 HE work of the Secretary for the last two years has not been very heavy, due to the following reasons: 1—No particular occasion arose during this period, which called for special action by the Association. 2—Owing to my residing in Toronto, and the meeting being held in Vancouver, I was entirely re-



E. A. GRANT, D.D.S., TORONTO,
Secretary-Treasurer, Canadian Dental Association, 1920-1924.

lieved of the heavy duties connected with planning and organizing for the Convention.

I would like at this time to express my thanks to Dr. W. J. Bruce and his local committees for the cheerful and thorough way they have carried these tasks through to a successful conclusion.

Routine correspondence was attended to as rapidly as time would permit, and, if any of this appears to have been unduly delayed, I hereby offer apologies. It was not so much due to lack of interest in the work as to the fact that being under the necessity of making a living, the more stringent financial conditions of the last two years demanded much more attention to one's private affairs. Considerable work has been done in connection with the Canadian Dental Hygiene Council, the Canadian Dental Research Foundation and the Oral Hygiene Committee, but as separate reports will be given you from these organizations, it need not be dwelt on here.

I am entirely in accord with the President's suggestions regarding reorganization of the Association. This matter has been discussed with officers of several of the Provincial Associations, every one of whom expressed themselves as favorable to such a plan. I hope that this matter will be thoroughly discussed by the Executive and some definite conclusions arrived at. I feel that a necessary factor to the success of such a plan is the appointment of a permanent secretary, who will be able to devote considerable time to the duties of the office. Suitable remuneration should be provided. Failing this, I believe the secretary should be a resident of the place where the next meeting is to be held.

A financial statement covering the period from the close of the last Convention to the opening of this one is submitted herewith:

FINANCIAL STATEMENT FROM MAY, 1922, TO AUG. 4, 1924.

Receipts:

May 19, 1922—Balance on hand	\$534.69	
January 16, 1923 — Balance from Joint Convention Committee, 1922	496.29	
July, 1922, to July 1, 1924—Bank Interest.....	47.85	
		\$1,078.83

Disbursements:

Robt. Simpson Co., decorating booth for Oral Hygiene Committee at 1922 Convention	\$ 16.00	
Office Equipment—desk, chair and filing cabinet.....	75.00	
Office expenses—typewriter maintenance and supplies	14.47	
Postage and Telegrams	19.48	
Stenographic Assistance	55.00	
Printing and Stationery	77.14	
Advance to British Columbia 1924 Convention Committee for preliminary expenses	500.00	
Balance on Hand	321.74	
		\$1,078.83

Respectfully submitted,

EDMUND A. GRANT.

STATEMENT OF RECEIPTS AND DISBURSEMENTS.

Vancouver, B.C.,

January 29, 1925.

The Canadian Dental Association,

Gentlemen,—We have made an examination of the Cash Receipts and Expenses paid by Dr. W. J. Lea, your Treasurer for the meeting held in this city, August 4th to 9th, 1924, and now submit herewith a Statement of Receipts and Disbursements for that meeting.

We have verified the Bank Account, as shown by the Bank Statement with the Cash Receipts.

We are of the opinion that the accounts, as shown by the Statement of Receipts and Disbursements of your Treasurer, are in order according to the information given us, and as shown by the books as at even date.

Yours truly,

J. S. BRICKER, D.D.S.

A. E. WARK, D.D.S.

RECEIPTS.

Cheque—Edmund A. Grant	\$500.00	
		\$ 500.00
Income from Exhibitors:		
The Wilkinson Co.	\$20.00	
C. H. Phillips Chemical Co.	24.00	
The L. D. Caulk Co.	22.50	
The Dentists' Supply Co.	40.00	
Horlick's Malted Milk Co.	40.00	
F. W. Hancox	20.00	
The L. D. Caulk Co.	48.00	
The Dental Company of Canada	48.00	
Dr. Harry P. Garrison	20.00	
Ash-Temple Co.	111.50	
Williams Gold Refining Co.	24.00	
The Pepsodent Co.	62.50	
Benjamin Dunn	24.00	
Cameron Surgical Specialty Co.	24.00	
B. C. Dental Supply Co.	40.00	
Richardson Dental Laboratory	8.00	
The Heidbrink Co.	24.00	
Columbus Dental Manufacturing Co.	24.00	
Hugo Freidman	24.00	
		648.50
Income from Registrations:		
153 Registrations, at \$25.00 each	\$3,825.00	
29 Registrations, at \$10.00 each	290.00	
		4,115.00
Miscellaneous:		
Exchange	\$.42	
Credit Balance from Golf Tournament	14.75	
Refund—Ash-Temple Co.	9.98	
		25.15
		<u>\$5,288.65</u>

DISBURSEMENTS.

Clinics and Convention Sundries:

Ash-Temple Co.	\$ 24.85
Telephone (W. K. Sproule)	11.10
W. J. Bruce (Express charge)	9.00
Frank A. Williams	400.00
Aubrey C. Martin	100.00
C. J. Stansbery	150.00
O. T. Dean	150.00
Frank Hergert	100.00
J. E. Argue	100.00
George H. Hewitt	27.00
Frank P. Smith	52.50
W. J. Bruce (Express charge)	6.60
Rose, Cowan & Latta	486.16
George A. Wood	22.90

Merchants' Cartage	42.00
Turnbull Brothers	17.04
J. W. Gehrke	14.18
Frank P. Smith	54.15
W. A. Brown	4.47
G. A. Pollard	23.22
Ash-Temple Co.	9.71
J. W. Gehrke	5.10
James Craig	75.00
T. W. Snipes	50.00
O. T. Dean	50.00
Mrs. Gleneek	25.00
W. S. Watson	20.00
Oscar A. Olsen	2.00
Vancouver Towel Service	10.00
Vancouver General Hospital	15.00
Ash-Temple Co.	9.98

 \$2,066.96
Entertainment:

W. J. Lea	35.00
Lawrence Crawford	84.00
Union Steamship Company	638.00
Percy W. Lee	115.00
Hotel Vancouver	570.00
J. W. Gehrke	4.46
Canyon View Hotel	78.00
Mrs. J. M. Jones	15.75
Wigwam Inn	117.00
Helen F. Snipes	10.25
Dr. Bessie Brighthouse	1.00
Shaughnessy Golf Club	15.00
R. L. Coldwell	123.75
Dr. Bessie Brighthouse	5.00
Commercial Photo Co.	30.00
Mrs. R. L. Coldwell	4.90

 \$1,847.11
Publicity:

George H. Hewitt	\$ 17.63
Rose, Cowan & Latta	145.43
MacBeth Spedding, Limited	28.35
Ash-Temple Co.	96.46
J. W. Gehrke	19.45
C.P.R. Telegraph	21.96
Ethel E. Morrison	1.75
J. W. Gehrke	13.45
C.P.R. Telegraph	6.18
P. H. VanderVoort	3.76
W. J. Bruce	35.00
Rose, Cowan & Latta	7.09
J. S. Bricker	2.00
T. W. Snipes	4.00

 \$402.51
Secretary's Expense Account:

Dr. E. A. Grant	\$250.00
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Treasurer's Account:

W. J. Lea (Sundries)	10.00
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Exchange	3.85
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 263.85

 \$4,580.43
Balance on Hand:

Royal Bank of Canada	\$708.22
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 708.22

 \$5,288.65

CANADIAN DENTAL ASSOCIATION.

FINANCIAL STATEMENT COVERING PERIOD FROM AUGUST 5, 1924,
TO JULY 7, 1925.

Receipts:

Aug. 5, 1924—Balance on hand	\$321.74	
Feb. 7, 1925—Cheque from Dr. W. J. Lea, balance from 1924 Convention in Vancouver (\$708.22 less exchange \$1.75)	706.47	
Aug. 5, 1924 to July 7, 1925—Bank Interest	15.55	
		\$1,043.76

Disbursements:

Postage, telegrams and express charges	\$15.00	
Stationery and Typing supplies	13.55	
Stenographic Assistance	10.00	
Balance forwarded to Dr. J. Stanley Bagnall, Halifax	1,005.21	
		\$1,043.76

EDMUND A. GRANT,
Secretary-Treasurer.

* * *

AUDITORS' REPORT

The Canadian Dental Association:

We have examined the books of the Treasurer, Dr. E. A. Grant, for the period May, 1922, to July, 1925, and find the receipts and disbursements, as set out in the above statement, to be correct.

(Signed) T. W. DAWSON,
W. E. WILLMOTT,
Auditors.

* * *

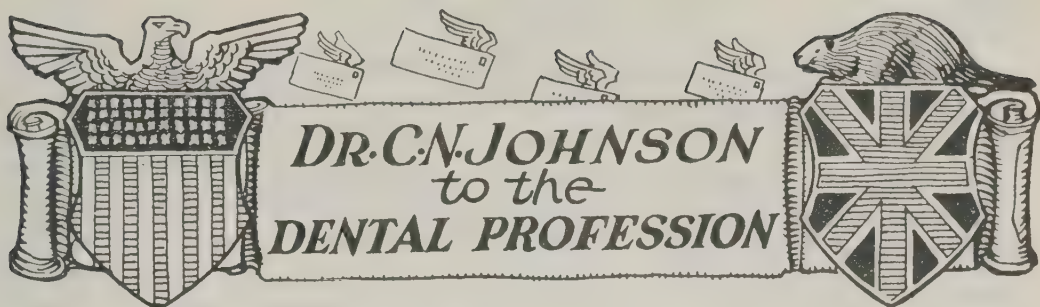
Registrations From Canada

Allen, E. F., Vancouver, B.C.	Corrigan, C. W., Vernon, B.C.
Alward, R. W., Prince George, B.C.	Courtice, C. J., Vancouver, B.C.
Aunger, A. E., Stettler, Alta.	Cox, E. L., Vancouver, B.C.
Bailey, N. S., Portage la Prairie, Man.	Davies, W. V., Chilliwack, B.C.
Bagnall, N. C., Vancouver, B.C.	Davison, R. L., Penticton, B.C.
Banford, H. C., New Westminster, B.C.	Devitt, J. C., Bowmanville, Ont.
Barker, H. P., Vulcan, Alta.	Dent, C. S., Vernon, B.C.
Benson, J. L., Winnipeg, Man.	Dixon, J. M., Calgary, Alta.
Bezeau, F. G. J., Vancouver, B.C.	Doherty, R. P., Grande Prairie, Alta.
Bier, E. R., Winnipeg, Man.	Doyle, E. M., Calgary, Alta.
Bedingfield, H. E., High River, Alta.	Dyer, A. F., Vancouver, B.C.
Black, J. E., Vancouver, B.C.	Faskin, L. J. D., Regina, Sask.
Bradley, S. W., Ottawa, Ont.	Fergie, W. A., Cranbrook, B.C.
Bricker, J. S., Vancouver, B.C.	Fletcher, J. D. L., Vancouver, B.C.
Brighouse, A., Vancouver, B.C.	Ford, C. V. S., Vancouver, B.C.
Brown, J. S., Vernon, B.C.	Fraser, W., Victoria, B.C.
Brown, H. M., Fort Saskatchewan, Alta.	French, C. M., Duncan, B.C.
Bruce, W. J., Vancouver, B.C.	Gallagher, W. M., Vancouver, B.C.
Bryce, W. W., Victoria, B.C.	Garesche, A. J., Victoria, B.C.
Bulyea, H. E., Edmonton, Alta.	Garvin, M. H., Winnipeg, Man.
Bush, G. F., Winnipeg, Man.	Gatewood, C. H., Vancouver, B.C.
Campbell, E. C., Saskatoon, Sask.	Gerry, J. B., Kamloops, B.C.
Carmichael, J. S., Edmonton, Alta.	Gibson, M. J., Lethbridge, Alta.
Carter, H. R., Nakusp, B.C.	Gilchrist, H. A., Vancouver, B.C.
Clark, H., Toronto, Ont.	Gilroy, L. E., Vancouver, B.C.
Clay, J. W., Calgary, Alta.	Goodman, S. G., Gravelburg, Sask.
Conn, R. W., Vancouver, B.C.	Goodwin, R. S., Vancouver, B.C.
Cook, C. E., Port Alberni, B.C.	Graham, J. R., Summerland, B.C.
Coldwell, R. L., Vancouver, B.C.	Grant, E. A., Toronto, Ont.
Corrigan, C. A., Toronto, Ont.	Gunning, W. N., Victoria, B.C.
	Guy, T. N., Vancouver, B.C.
	Hacking, W. J., New Westminster, B.C.

- Hall, Lewis, Victoria, B.C.
 Hall, R. W., Vancouver, B.C.
 Hanna, R. S., Vancouver, B.C.
 Haynes, W. T., Hardisty, Alta.
 Heard, T., Vancouver, B.C.
 Hill, J. F., Vancouver, B.C.
 Hoar, H. B., Blairmore, Alta.
 Hoare, H. G., Wetaskiwin, Alta.
 Hougén, O. R., Mission, B.C.
 Johnson, A. L., Moose Jaw, Sask.
 Jones, E. C., New Westminster, B.C.
 Jones, J. M., Vancouver, B.C.
 Kennedy, C. A., Toronto, Ont.
 Kenney, A. A. B., Maple Creek, Alta.
 Kerr, D. E., Duncan, B.C.
 King, F. E., Vancouver, B.C.
 Krueger, L. T., Toronto, Ont.
 Large, H. L., Medicine Hat, Alta.
 Lea, W. J., Vancouver, B.C.
 Leslie, O. H., Vancouver, B.C.
 Loudén, W. R., Vancouver, B.C.
 Loveridge, W. A., Vancouver, B.C.
 Macaulay, B. H., Calgary, Alta.
 MacBeth, G. A., Vancouver, B.C.
 McDonald, T. F., Medicine Hat, Alta.
 McIntyre, L., Edmonton, Alta.
 McIntyre, M. A., Edmonton, Alta.
 MacKay, A. W., Vancouver, B.C.
 McKenzie, A. S., Toronto, Ont.
 McKeon, B. E., Victoria, B.C.
 MacLaughlan, Lorne, Ottawa, Ont.
 MacLaurin, L. D., Edmonton, Alta.
 McLean, R. G., Toronto, Ont.
 McMurray, H. S., Vancouver, B.C.
 McPherson, J., Edmonton, Alta.
 McRae, A. A., Vancouver, B.C.
 McSween, P. D., New Westminster, B.C.
 Magee, J. M., St. John, N.B.
 Mabee, A. H., Oshawa, Ont.
 Malony, J. F., Winnipeg, Man.
 Marion, D., Edmonton, Alta.
 Marlatt, S. P. H., Powell River, B.C.
 Mason, A. D. A., Toronto, Ont.
 Massey, D. W., Vancouver, B.C.
 Mathison, R., Kelowna, B.C.
 Merkeley, H. J., Winnipeg, Man.
 Miles, F. B., Cranbrook, B.C.
 Moore, F. G., Lacombe, Alta.
 Moore, F. H., Vancouver, B.C.
 Moore, J. H., Medicine Hat, Alta.
 Muir, T. J., Trail, B.C.
 Morris, Z. A., Jasper Park, Alta.
 Oberg, A. T., Vancouver, B.C.
 Pallen, R. L., Vancouver, B.C.
 Peden, T. R., Vancouver, B.C.
 Piper, W. A., Calgary, Alta.
 Pollard, G. A., Vancouver, B.C.
 Pollock, F., Vancouver, B.C.
 Quinn, F. H., Abbotsford, B.C.
 Roberts, J. G., Edmonton, Alta.
 Rice, L. C., Kimberley, B.C.
 Ryan, F. W., Halifax, N.S.
 Shepherd, J. W. N., Kelowna, B.C.
 Shortreed, R. D., Vancouver, B.C.
 Smith, C. J., New Westminster, B.C.
 Smith, F. P., New Westminster, B.C.
 Smith, Percy, Toronto, Ont.
 Smith, W. D., Grand Forks, B.C.
 Snipes, T. W., Vancouver, B.C.
 Spencer, H., Vancouver, B.C.
 Sproule, W. K., Vancouver, B.C.
 Steed, W. B., Nelson, B.C.
 Stewart, J. S., Lethbridge, Alta.
 Stokes, W. R., Ocean Falls, B.C.
 Switzer, F. K., Regina, Sask.
 Thomas, A. J., Victoria, B.C.
 Thomas, H. E., Vancouver, B.C.
 Thomas, P. C., Vancouver, B.C.
 Thomson, G. K., Halifax, N.S.
 Thompson, W. G., Hamilton, Ont.
 Thornton, A. W., Montreal, Que.
 VanderVoort, P. H., Vancouver, B.C.
 Walley, G. A. C., Nelson, B.C.
 Wark, A. E., Vancouver, B.C.
 Watson, G. C., Vancouver, B.C.
 Watson, W. S., Vancouver, B.C.
 Wescott, V. D., Vancouver, B.C.
 Wilson, R. H., Vancouver, B.C.
 Wood, H., Vancouver, B.C.
 Wright, W. F., Vancouver, B.C.
 Zimmerman, J., Toronto, Ont.

Registrations From United States

- Beasley, G. D., Spokane, Wash.
 Bell, Robert, Spokane, Wash.
 Brown, Chas. C., Seattle, Wash.
 Covey, N. G., Seattle, Wash.
 Fallenreck, W. M., Spokane, Wash.
 Fixott, H. C., Portland, Oregon.
 Hagen, W. H., Spokane, Wash.
 Higgins, W. G., Spokane, Wash.
 Holter, H. L., Spokane, Wash.
 Horly, G. H., Seattle, Wash.
 Keenan, H. D., Butte, Montana.
 Keenan, B. J., Spokane, Wash.
 MacKenzie, C. M., Pasco, Wash.
 McKeown, A. G., Bellingham, Wash.
 Magill, C., Seattle, Wash.
 Major, J. A., Yakima, Wash.
 Manchester, L. B., Wenatchee, Wash.
 Marshall, J. R.
 Nishicka, H., Portland, Oregon.
 Peters, G. W., Spokane, Wash.
 Pfeiffer, L. L., Spokane, Wash.
 Schlund, J. B., Spokane, Wash.
 Shanks, J. E. R., Spokane, Wash.
 Shearer, W. C., Portland, Oregon.
 Sherwood, L. W., Spokane, Wash.
 Thiégs, B., Spokane, Wash.
 Williams, H. H.
 Williams, J. H., Spokane, Wash.
 Woolson, A. H., Spokane, Wash.



The Little Things

DON'T be afraid—I am not going to magnify the importance of little things in accordance with the formula of so many writers; rather I am going to minimize their importance for once.

When I see how much useless fuming and fussing there is over the trifling things of life, I am appalled at the senseless waste of energy thus expended. A little grievance, so small that it really amounts to nothing, is often used as a peg on which to hang a ceaseless controversy. Many lives have been embittered by constantly harping on the trifles—the things of no moment. This magnifying of small matters enters into every avenue of our lives—it permeates all our activities and interferes with our happiness. If we will calmly sit down at the end of a year and look back over the events which worried us most and caused us the greatest unhappiness during the previous twelve-month, we will be struck with the relatively large percentage which emanated from mere trifles—things which should never have been permitted to affect us in the least.

There is one fundamental lesson of life which we all need to learn—to take every problem which presents itself and study it solely with relation to its probable effect on our lives or the lives of those around us in the months or years to come. The present is not so much a matter of importance—it is the ultimate that should be considered. If we do this we shall find how very trivial are many of the things which in the past we have permitted to annoy and disturb us, and how senseless it is for us to magnify the small things into an element of apprehension or unhappiness. “It really doesn’t matter” is a sentence we should learn by heart, and then we should apply it in most of the minor situations which confront us.

There are few really great men in the world, and they are great merely because they refuse to permit the small things to disturb them. They concentrate on the larger affairs of life and do not waste their energies over the minutiae. The reason most men magnify the minor things is because they have not the courage or the ability to attain to great things. They need to broaden their vision, and widen their grasp.

In professional practice we see many instances of the folly of fretting over trifles, not only on the part of professional men themselves, but on the part of their patients. There is a certain type of individual who is forever pestering the professional man about trifles—little ailments that amount to nothing. If a small area of irritation due to a minor injury occurs in the mouth, they straightway rush to the dentist with the suspicion that they have pyorrhea or an abscess; if they chance to fracture a small bit of enamel from a tooth, it becomes in their mind a calamity; if a little cavity occurs in the enamel they are in despair, and if perchance there are several cavities the world must surely be coming to an end. They cannot look with complacency on any of the minor mishaps of life, and they single themselves out as the most conspicuous martyrs of a misdirected providence.

The magnifying of trifles keeps many people miserable, when otherwise they might soar into the lofty heights of real achievement and breathe the free air of hope and happiness. Learn to ignore the trifles, and to say: "It really doesn't matter."

C. H. Johnson

Dental Practitioners' Course at University of Toronto



DENTAL Practitioners' Course will be given by the Faculty of Dentistry, University of Toronto (formerly the School of Dentistry of the Royal College of Dental Surgeons), September 14th to 19th (inclusive) at the Dental Building, 240 College Street, Toronto, and all ethical Dental Practitioners are most cordially invited to spend one week in the intensive study of modern procedure in various branches of Dentistry.

Fee for course, \$25.00. Fee to Graduates of the University of Toronto, or the School of Dentistry R.C.D.S., \$10.00. Dental Teachers registered without fee.

Regardless of the angle from which one views the subject of orthodontia, the fact remains that fundamentally one has to consider it a question of balance. Indeed, *balance* may be said to be the very soul of orthodontia.—James C. Angle, D.D.S.

Oral Health



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Vol. 15

TORONTO, AUGUST, 1925

No. 8

EDITORIAL

Canadian Dental Association

IN this issue ORAL HEALTH is publishing the complete Proceedings of the last meeting of the Canadian Dental Association held in Vancouver, 1924, and while this has necessitated our increasing the usual number of reading pages from 64 to 74 pages, we believe the dentists of Canada will appreciate receiving the Proceedings in one complete issue, rather than having them distributed over a number of months.

The Canadian Dental Association has an important place to fill in the organization of the Dental Profession in the Dominion of Canada, and deserves the loyal support of every member of the Profession. Owing to the great distances involved in travelling from Coast to Coast, all of the members of the Profession cannot be expected to attend every meeting of the Association, even though it be held but once in two years. However, a study of the records of the Association shows that from the date of the inception of the Association, outside of the dentists within a

radius of a few hundred miles of the place of meeting, a comparatively small group of men have attended more than one-half of the meetings of the Association. The result has been that the personnel of each biennial meeting of the C.D.A. has been quite different, the majority being composed of members of the Province in which the convention meeting was being held. But notwithstanding this serious disability, there has been maintained in the Association a national sentiment and interest which has been of great value in maintaining the unity of the Dental Profession throughout the Provinces of Canada.

The members of the British Columbia Dental Association have earned the thanks of the entire Canadian Dental Profession for the time and effort they unselfishly spent in making the 1924 meeting the greatest success in the history of the Association.

The onus for the successful planning and managing of the 1926 meeting rests upon the members of the Profession in the Maritime Provinces, and every member is urged to attend the meeting in Halifax next year, if possible. The dates are to be arranged at a time when Nova Scotia and the Maritimes will be seen at their best, and not to conflict with the meeting of the International Dental Federation which is to be held in Philadelphia next year.

British Columbia has shown the way, and the Maritimes are now planning to make the 1926 meeting equal to that of 1924. Every member should give his undivided support and plan his summer that he may, along with members of his family, attend the Halifax meeting.

American Dental Association

Sixty-Seventh Session, Louisville, Ky., Sept., 21-22-23-24-25, 1925.



MEMBERS of the Canadian Dental Association attending the meeting of the American Dental Association, Louisville, Ky., Sept. 21-25, may obtain Identification Certificates by sending their names and addresses to D. C. Bacon, 31 N. State St., Chicago, Ill.

One-way ordinary first class fare and one-half to Louisville and return. Tickets good going September 16-22, and returning to original starting point not later than midnight of October 1.

In the words of Sir Frederick Treves, "A man may possess all the learning that a well-equipped library may contain, and yet fall short of success as a practitioner of his art."

Out Under the Stars

TONIGHT, if it is clear and fine, step out of the house when no one is about and sit down and look at the eternal stars. Look at them flung across the dark heavens and relate yourself to them in terms of insignificance.

Consider. You—tiny, fleeting you. The stars have been shining down through all the ages. You are here for just an instant. In a minute of star-life a nation rises, lives, and dies, and in a few more minutes of star-life becomes dim, uncertain legend.

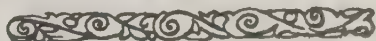
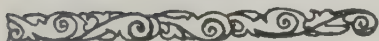
In our little instant we strut beneath the stars, you and I, magnifying the importance of our lives, fretful if our fellows do not acclaim our achievements, each of us his own self-appointed axis for the universe.—*Selected.*



H. WINTERS, D.D.S., OTTAWA,
President, Eastern Ontario Dental Association.

ORAL HEALTH

*A JOURNAL THAT STANDS FOR THE OUNCE OF
PREVENTION AS WELL AS THE POUND OF CURE*



Vol. 15

TORONTO, SEPTEMBER, 1925

No. 9

Proceedings of the Eastern Ontario Dental Association Convention, 1925

STAN. G. McCAUGHEY, D.D.S., SECRETARY, OTTAWA.



THE Eastern Ontario Dental Association held its 48th Annual Convention at Stanley Island (Cornwall), on June 24th, 25th and 26th, 1925. This society, the oldest in Ontario, has as its avowed object, as incorporated in its constitution, " to cultivate the science and art of Dentistry and to promote among its members social intercourse and good-fellowship." It does not make great pretences, but attempts to present able essayists on pertinent subjects, and to generously mix with the scientific and technical, sufficient opportunity for sociability and good-fellowship, for needed relaxation. It should not in any sense be considered, by its constituents, as a competitor of other societies. It has its own function, that of cementing good-fellowship among the dentists of District No. 1. It is our annual "get together" "powwow," the "Old Home Week" of the territory from Kingston and Pembroke east to the Quebec border.

The writer knows of no influence in his professional life which so engenders a love of his fellow practitioner, as the E. O. D. A. To see the cordiality with which old timers meet (old timers in practice, not in years), and to listen to their conversation, makes one think at times of a visit to Grandfather's, when former days were recalled by our elders.

One cannot attempt even a brief description of this meeting without a word of appreciation for the Cornwall members, whose arrangements for the ladies and our meetings were so excellent. Nor can one say too

much in commendation of the Hotel Algonquin and its ideal host, Mr. J. R. Duquette. A splendid hotel on a charming island, where every summer sport can be indulged in. The one thing left to be desired is fine weather. The weather man was particularly ill to us on Thursday and Friday mornings, but the "silver lining" in this case was the removal of the temptation to the "golf-fiends" to forsake the papers for the links.

An enjoyable occasion was the presentation of life memberships in the Association and illuminated addresses of appreciation to Dr. R. E. Sparks of Kingston, the only surviving charter member (he never misses a meeting); to Dr. W. Davy of Morrisburg, the only surviving former District Representative; and to Dr. S. S. Davidson of Ottawa, the present member of the Board of Directors of the R.C.D.S. from District No. 1.

Another pleasant feature was the presence of Dr. W. J. Bell, Deputy Minister of Health for Ontario; Dean Wallace Seccombe of the R.C.D.S.; Dr. F. J. Conboy, Director of Dental Services in the Ministry of Health; Dr. Eudore Dubeau, Dean of the Faculty of Dentistry of the University of Montreal, recently made a member of the Legion of Honor by the Government of France; and three of his staff, Drs. Pinard, Cote and Malo. All of these men were made honorary members of the Association.

Dr. Seccombe, on behalf of the Dental Profession, thanked Dr. W. J. Bell, Deputy Minister of Health, for his interest in Dentistry, and the President, in presenting Dr. Bell with honorary membership, thanked him for his presence and his paper on "Public Health."

We appreciated Dean Seccombe's lucid explanation of the proposed arrangements regarding the establishment of a Faculty of Dentistry by the University of Toronto.

A banquet was given by the Cornwall dentists on Thursday evening, after which the visitors were welcomed on behalf of the Mayor, by ex-Mayor John Chisholm, who, being Scotch, gave us an excellent talk on "Glengarry." Dr. A. A. Smith, chairman of the local committee, presided, and appropriate speeches were made by Dean Seccombe, Dr. Conboy, Dr. Sparks, and the President, Dr. H. Winters. We imagine that "appropriate remarks" were made by Dr. Larry Martin as he tried to carve a roast young pig which he and his table thought they'd rather have than turkey.

After the banquet a concert was held in the ball room, which revealed considerable talent among the wives and members of the profession. This was followed by a dance. Those taking part in the concert were: Mrs. W. B. Cavanagh, Mrs. S. G. McCaughey, Drs. W. Davy, A. Grace, and S. G. McCaughey.

The proprietor of the hotel had placed his private yacht at the dis-

posals of the ladies and had planned a day's cruise for them on Thursday, but unfortunately the rain prevented this.

On Friday afternoon a golf tournament was held. Three cups were presented by the Cornwall dentists, the winners being:—The cup for the best gross score, Dr. Balmer Beattie, Ottawa. The other two cups were won by, Dr. M. J. Mulvihill, Pembroke; Dr. Jack Phillips, Cornwall.

The surroundings are so splendid and the Cornwall dentists such excellent hosts, that we're going back for our 49th meeting, the last week of June, 1926. The semi-centennial meeting in 1927 is to be made a special Jubilee Meeting, to be held in Ottawa.

NOTES.

We Wonder:

How so many dentists got such charming wives? If the Cornwall dentists spent any time in their offices the week before the meeting? Where Larry and Harry got that pig? Why Charlie Juvet keeps his golf balls in his socks? How Mrs. Gibson ever keeps track of O. K.? How low Bill Davy can sing? If J. R. Duquette could think of anything else to do for our comfort? Where there is a prettier spot than Stanley Island on a sunshiny day?

We Know:

Why Doug. Coupland got married.

* * *

President's Address

H. WINTERS, D.D.S., OTTAWA, ONT.



ENTLEMEN: I welcome you to the 48th annual meeting of the Eastern Ontario Dental Association, which is distinguished by being one of the oldest, if not the oldest dental association in Canada, and has been identified with many of the steps of advancement that have characterized the dental profession. It has numbered among its members such men as Beers, Hannah, Robertson, and Martin, who have passed to another sphere of action and whose memories we all revere. Since our last meeting two events of great and far reaching importance to the dental profession, and indirectly to the public, have transpired. The Royal College of Dental Surgeons, by an overwhelming majority, has decided, in co-operation with the University of Toronto, to make the School of Dentistry a Faculty of the University.

This, in my opinion, is the most progressive move that has taken place affecting the dental profession in recent years. It will not only

greatly aid in raising the status of the profession in the estimation of the other learned professions, but will ultimately result in a much more comprehensive training for dental students than they have hitherto enjoyed. The very fact of pursuing their studies side by side with students of others scientific faculties of the University will tend toward a mutual respect and deeper sympathy, and will foster a spirit of co-operation that cannot but be beneficial to each, and incidentally to the public, whom each in his own sphere is aiming to serve.

It is hoped that the Faculty of Dentistry will, by its new relationship, have ample funds at its disposal to give the best that is available to its students and not be, as heretofore, handicapped by annual deficits that have in recent years been a growing worry to the Board. The social status of the dentist will be improved, though the improvement will be gradual. Social ostracism has undoubtedly been all too prevalent. One of our journal editors has quite recently called attention to the fact that dentists have been denied admission to scores of social and athletic clubs because of the fact that they "cleaned" teeth. This is a deplorable thing, and every member of the profession should use every legitimate means in his power to remove this unjust and foolish stigma. Once the public discovers that the dentist's academic and scientific training is equal to and in many cases more comprehensive than the sister professions, a change in this respect will be brought about. The appreciation will gradually filter through to the public by the respect promoted in the college halls and class rooms.

The other important step that has been taken is the establishment of a Department of Dentistry under the Provincial Department of Health. I understand that the policy of the Department is, as rapidly as possible, to establish dental clinics in the Public and Separate Schools, so that the children of the poor may have the dental service that is so badly needed. This will be brought about by a campaign seeking to educate the public as to the need, and advantage to the child, of dental service. Once the need is brought home to school boards, governors and trustees of hospitals, municipal councils and the rest, the providing of clinics to supply the need will be comparatively easy.

How can we as dentists promote this work, if the public are not to be educated as to the advantage of oral hygiene and healthy dental organs? It is the Dental Profession that has to act as tutors, first, by upholding the hands and co-operating in every possible way with the head of the Dental Department and the officers under him; secondly, by taking a greater interest in the municipal activities of the communities in which they live, by seeking election to municipal councils, boards of health, collegiate boards, and by aiming to get representation on hospital boards. It is deplorable that dentists, I suppose because of the arduous character of their work, have been prone to shirk responsi-

bility in this regard, but it would in my opinion be a great advantage culturally, to take a greater interest in public affairs; it would broaden the vision, and he would bring back to the routine of the office work a new inspiration that would tend to make his calling more worth while.

We note with interest the establishment of a Dental Department in the Western Hospital, Toronto, under the direction of Dr. Harold Box, with Dr. Thompson, a recent graduate, as interne. Dr. Box has associated with him Drs. Robb and Amy, the latter known to most of you. This is another very important advance and should be emulated in all centres of population. It is a deplorable fact that in our Civic Hospital in Ottawa, which is said to be the last word as to building and equipment, little or no provision has been made for a dental department. We hope that the oversight will soon be remedied.

The note to be stressed in all our dealings with the public should be *service*. If we have entered the ranks of the profession with the idea of making money and reaching a position of affluence, those of us who are getting along in life have long ago abandoned any such illusion, but this does not mean that great satisfaction may not accrue as the every day compensation in our work, of having in some small measure mitigated some of the pain and distress incident to human frailties.



Oral Surgery of Interest to the General Practitioner

D. C. W. COUPLAND, D.D.S., OTTAWA, CANADA.



It will be the purpose of this paper to give points of interest to the general practitioner and to give as much practical knowledge as possible.

In a paper such as this, it is only possible to touch on a few phases of oral surgery; and diagnosis, surgical exodontia, surgical preparation for dentures, hemorrhage and afterpain have been chosen.

DIAGNOSIS.

A special essay should be given on diagnosis, and then the field would not be nearly covered. It is essential that the dentist be familiar with dental and oral pathology and have some knowledge concerning differential diagnosis of the various lesions with which the oral cavity is liable to be affected.

The teeth alone should not be the horizon of the dentist. By means of a good light and drying the tissues, examinations should be made for fistulae, ulcers, mucous patches, etc. The color and texture of the mucous membrane should be noted. Absence of teeth that are

sometimes impacted should be looked on with suspicion. By careful palpation depressions and elevations on the bone can be located; these may bring to light impactions, cysts, necrosis, or neoplasm.

The tongue should be depressed and the condition of the soft palate, uvula, tonsils, etc., noted.

Diabetic, antral or Vincent's infection can be smelled. Fluctuating abscesses, cysts, or neoplasm, can be palpated. Tumors that are removed should undergo pathological examination where there is any suspicion. If any suspicion before operation, section should be made and forwarded to pathological laboratory.

A complete history of the case should be taken and x-rays of the case should be at hand. This takes longer, but it prevents the quick diagnosis that often leads to consequences that are not pleasant, such as treatment of root canals for months or removal of pulps of normal teeth where the trouble is a cyst.

Diagnosis is not easy in many cases, especially where a large number of pulpless teeth are present in the mouth and systemic disease is present. The physical condition of the patient and the nature of the systemic trouble will have to be considered.

Where systemic disease is present and the patient's resistance is below normal, any suspected focus of infection should be removed.

If the dentist asks himself the question, "If this were my own mouth and my physical condition were similar to this patient's, what would I do?" this will simplify many puzzling cases.

SURGICAL EXODONTIA.

Certain conditions cause extractions to be difficult, such as changes of tooth tissue where the pulpless tooth is brittle and cannot be removed by forceps. Teeth with bent or curved roots or other abnormal formations often present problems in extraction, as do the exostosed roots and ankylosed teeth. Impacted and unerupted teeth also cannot be extracted in the ordinary routine way.

In many of these cases a mucoperiosteal flap will have to be raised. In flap operations we should apply the law of common sense, and with a gentle manipulation of the tissue remove the minimum of bone to enable us to do a thorough operation. The alveolar border of the bone should be preserved if possible, and septum between roots should be removed rather than the compact bone of the buccal plate. Bone margins should always be smoothed down, all small particles of bone and debris should carefully be removed from sockets, soft tissue should be molded back to shape and sutures only be used where the flap will not remain without them.

In giving an example and technique of a flap operation, let us con-

sider the extraction of the upper first bicuspid. The forceps have been carefully applied and gentle luxation has been tried, and the result has been that the apical third has remained in.

The socket is carefully sponged and we see the two fine apices in place. To attempt force with an elevator is to run a big chance of forcing a root into the antrum, so a flap operation is decided on.

TECHNIQUE.

A semilunar incision is made opposite the apical third of the root. Retractor is used to expose the bone from which the tissue has been raised with a periosteal elevator. The bone is carefully removed over buccal root, a fine elevator is inserted at apex of root and with a downward motion the root is dislodged. There still remains the lingual root. The fine straight elevator is inserted through the window in the bone, the septum of bone between buccal and lingual roots is removed, and the lingual root removed by inserting the fine elevator through the socket of the tooth, the fine edge worked in between the root and the lingual plate of bone. A gentle luxation and the delicate root is dislocated and is easily removed. Two sutures are inserted in the incision. Dermal suture has given admirable service and is easily handled. The sutures may be removed in five days.

If in an attempt to remove the bicuspid, the crown and only a small part of the root has been removed, so that practically the whole root remained, and same could not have been removed by forceps or elevator without considerable damage to the alveolar process, the following procedure would be indicated. An incision starting at the mesial of bicuspid and running slightly forward for about 2 cms. is made. In many cases no posterior incision is necessary. The mucoperiosteum is raised and the bone over the bicuspid is exposed. The outer plate is removed, a fine elevator is inserted between root and lingual plate of bone and root is dislodged. The flap is molded into position, the line of incision is resting on bone and flap will hold. Two sutures are inserted, which are removed in five days.

IMPACTED TEETH.

The teeth that are most often impacted are third molars and cuspids. Impacted mandibular third molars may be either in a vertical or horizontal position and are either inclined toward the second molar or toward the ramus of the mandible. They may lie toward buccal or lingual.

The roots of the third molar are either straight or curved. A straight root can be removed in a vertical or upward direction. A curved root must be removed in the direction of its curve.

Many teeth are practically erupted and covered only with mucous membrane. Many of these can be removed simply by the application of a straight elevator used with a rotary motion. Much force must not be used or fracture of the mandible may result.

Other teeth may demand removal of bone. A straight root may require bone removal only and then be removed quickly in a vertical direction. Curved roots require more bone removal, as they must be rotated out.

Where teeth must be rotated mesially, and resection of bone may cause injury to the periodontal membrane of second molars, a portion of the crown of the third molar should be resected (where rotation would dislocate second molar, the entire crown should be resected), elevator applied and root rotated out.

Every impaction should be carefully studied with x-rays at hand, every step in technique planned, and decision made whether root will be removed in a vertical direction or be rotated out, whether bone removal alone will suffice or if bisection of crown will be necessary.

IMPACTED MAXILLARY THIRD MOLARS.

These as a rule are much simpler to remove. An incision is made over tuberosity and another incision toward cheek. The flap is laid back and bone necessary to expose tooth is removed. A sharp straight elevator is inserted and rotated, and as a rule the tooth is quickly dislodged.

IMPACTED CUSPIDS.

Cuspids may be palatally or lingually situated with relation to other teeth. Occasionally they are interlocked and prove extremely difficult to remove without disturbing neighboring teeth.

The type that lie buccally are easiest of removal. Incision, raising flap, removal of bone, application of elevator and removal of tooth, are steps in operation.

Most impacted cuspids lie palatally and must be removed from plate. Incision is extended along median line posteriorly, also along alveolar border. Flap is laid back and held by means of a suture passed through the flap and tied to molars on opposite side.

Bone is then removed over crown of tooth; often the operation is facilitated by removal of crown first, drilling a hole through bone into root, inserting a fine straight elevator and forcing root down into socket where crown was located.

CYSTS AND TUMORS.

The most common type of cysts found in the oral cavity are radicular cysts and dentigerous cysts. These cysts occurring in oral cavity

develop unfortunately without pain and frequently assume large proportions, with a resultant tremendous destruction of normal tissue, without inconvenience or knowledge to the patient.

The most common type is the radicular cyst. These are nearly always associated with devitalized tooth or tooth root and are frequently found in edentulous jaws.

The etiology is not clearly known. In all probability it begins with the granuloma. It is not understood why some granulomata develop into cysts and some do not. It is a clinical fact, however, that certain granulomata increase in size until a cavity in bone is formed which is lined with epithelium. The contents of the granuloma undergo decomposition and a fluid content remains which gradually increases and the bone surrounding the cyst undergoes resorption. These may invaginate the walls of the maxillary sinus and completely obliterate this cavity; in the mandible they may extend until the coronoid process is destroyed, without perceptible inconvenience to the patient. In all cases the development of these cysts is invariably chronic and of a slowly progressive nature. As a rule no disturbing signs or symptoms arise until they become infected, or some important structure is pressed upon, or until they become so large that a change in facial contour is noticed. By this time a large amount of tissue has been destroyed, the outer plate of bone has been resorbed by the pressure of the increasing cystic fluid until on palpation it conveys the sensation of palpating parchment or of an egg shell cracking. Occasionally these cysts may become infected, either by rupturing into the oral cavity, or by surgical interference through an error in diagnosis, the dentist assuming the cyst to be an abscess and opening it for the purpose of establishing drainage. In such cases there may be symptoms of infection and pain may be associated with the lesion. The cystic fluid may vary in color, from light amber to dark brown or yellow, depending on the length of time the cyst has been in progress of development, and whether or not infection is present. The aspiration of this fluid is a pronounced diagnostic feature in making a differential diagnosis.

TREATMENT.

The operative procedure is to incise mucoperiosteum, elevate it in order to expose osseous tissues, remove outer plate of bone if it has not already been destroyed; if sac has not been broken puncture it near lower border and withdraw contents through needle into record syringe. This prevents the cyst fluid from flowing over field of operation in case sac is accidentally punctured during removal. The sac is completely dissected out, the bony edges smoothed down, and flap sutured into position.

The wound is packed with iodoform gauze and changed in 48 hours. This is continued until granulation occurs.

SURGICAL PREPARATION FOR DENTURES.

There are sound basic principles underlying surgical preparation of mouths for dentures. In shaping up a mouth we should do so with a view, first, to stability of dentures, and secondly, to aesthetics.

The patient is observed carefully when smiling and when in repose. After estimating visually how much alveolus should be removed, the mouth is then studied to see if removing that amount of tissue is going to impair the stability of the denture. In studying the mouth with stabilization of dentures in view, mounted models in correct jaw relation should be at hand. These are invaluable, as certain jaw relationship contraindicates surgery. Protruded mandible contraindicates surgery in maxilla. Retruded mandible contraindicates surgery in mandible. The ideal for stabilization of dentures is parallel walls with U-shaped ridges, as settling of dentures to place will maintain peripheral valve seal. It is permissible to leave certain undercuts; for example, one tuberosity may protrude slightly and the other may have a distinct bevel. The denture in this case could be seated by allowing it to be placed over slightly protruding tuberosity first, in insertion in the mouth. Bony nodules form on hard palate, which may be often removed to advantage.

Very often muscle attachments are very low and interfere considerably with the stability of the dentures. The muscle trimmed impression for the dentures is taken with these in place. They are then removed from the plaster model and dentures made. When dentures are ready for insertion the muscle is released and dentures immediately inserted.

OPERATION OF ALVEOLECTOMY.

Anaesthetic.—Block anaesthetic in most cases is the anaesthetic of choice. Patient's co-operation, bloodless field, time of operation, are important factors determining this.

Technique.—In most cases teeth are extracted and the mouth surgically prepared following this. In cases where the patient has heavy bone over the cuspids and molars, this should be relieved on the gingival third of the root by means of chisel and mallet before extraction; this prevents fracture of a large area of alveolar plate. Following extraction of the teeth, the mucoperiosteum is retracted, the buccal plate is bevelled to the height desired and the points of bone on the lingual surface smoothed down. If the labial ridge is too long, this is shortened by removal of excess bone. In shortening the labial ridge, care must

be used in order that the nasopalatine nerve emerging through the incisive foramen is not injured.

In removing the undercuts by bevelling the buccal plate of bone, the natural centre of the ridge must be maintained and the bone septa between the teeth must not be removed.

The tissue is incised with lancet, mucoperiosteum raised with periosteal elevator and held with tissue retractor, the labial surface of bone bevelled with side cutting rongeur, points on lingual removed with same rongeur, all points smoothed down with surgical file, sockets cleansed of small particles of bone and debris with Molt curettes, held lightly in fingers. The entire field is washed with a saline solution and flaps molded back to place. By feeling with the finger tip edges and points can be felt and quickly removed at this time.

When the flap is molded over the bone, the surplus should be excised with curved scissors. The flap should be held in position with one hand and the scissors used with the other. This prevents cutting off too much tissue.

X-rays should be at hand to avoid entering antrum and also to disclose granulomata, cysts, etc., which can be removed at time of operation.

Contrary to the general idea, it is rarely necessary to suture; a flap molded to place and having bone support will stay in position, and this removes any danger of ridge of scar tissue where sutures are too tightly drawn.

The best results from this operation are observed in cases where impressions are taken immediately after operation, base plates made and inserted for a short time and dentures then made. It is a clinical fact that dentures with balanced occlusions, inserted at this time, are associated with rapid bone regeneration and a minimum of absorption.

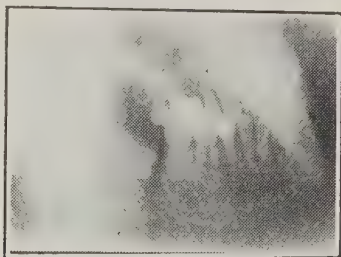
Afterpain.—One of the questions very often asked is, "What do you do for afterpain?" Dr. Henahan gave us food for thought when he said that the best way to control afterpain was to prevent it.

Strict asepsis in operating room, sterile instruments, sponges and dressings, sterile syringes and anaesthetic solutions, slow injections of solutions of body temperature, careful manipulation of soft tissues, removal of all loose edges of bone and smoothing down all sharp edges of process will do a lot in prevention of afterpain.

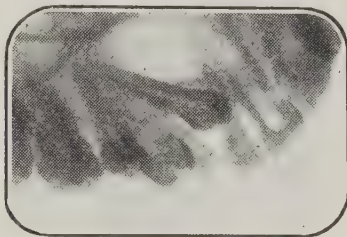
Even with all this care, afterpain will be experienced in many operations. The patient is advised to apply ice bags to the affected area for two hours, and fifteen minutes of each hour following. Where the operation has been severe, Frossts' 222 tablets are advised, one every 4 hours. Hot foot bath at bed time, all the rest possible, and all the water the patient wants to drink, but no rinsing of mouth with water

over area operated on, as there is danger of disturbing blood clot and encouraging hemorrhage.

Some patients develop dry sockets in spite of everything. Soothing dressings of guaiacol and olive oil for a day or two will suffice in many



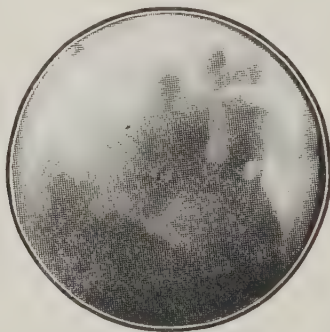
No. 1—Impaction and cyst of mandible.



No. 2—Radicular cyst of maxilla. Unerupted cuspid was removed at time of operation.



No. 3—Radicular cyst of maxilla which filled the entire antrum.



No. 4—Radicular cyst of mandible, involving body of mandible to the extent of almost a pathological fracture and extending upward involving the coronoid process.

cases. The pain will persist in other cases, and stimulation of the fresh blood clot under general anaesthetic seems to be the best treatment.

Where patients are in pain and dressings are to be used, they should be applied between 4 and 5 p.m. This as a rule will carry the patient through the long hours of the night when the body resistance is low and pain would otherwise be experienced.

Hemorrhage.—The best treatment of hemorrhage is application of pressure. The socket or sockets are located, that are causing the trouble. The blood clot, that is in all probability of quite an extent, is removed, and any loose pieces of process picked out.

If it is a mild case, the insertion of a small gauze pack and allowing the patient to close on it with the opposing jaw will suffice. The patient remains quiet and in a prone position for one-half hour or longer.

If the hemorrhage is quite marked, a compound saddle is made to envelop the buccal and lingual plates; this is made with a biting surface for the opposing teeth, in order that when the patient closes pressure is exerted on the compound saddle. Two or three layers of gauze are laid in the compound saddle and it is put to place. The gauze exerts the additional pressure needed and the hemorrhage ceases immediately that pressure is exerted. The patient is made to lie down and keep the continued pressure over the area. It may be necessary to continue this one, two, or three hours, or even longer.

The advantage of this method is that on removing the saddle a contoured wound with a fresh blood clot remains, which in all probability will heal by first intention. Where the socket is packed a gaping wound that heals by second intention is left.

It has been the endeavor in this paper to give practical aid in some phases of oral surgery. In oral surgery, as in other branches of dentistry, we must be conservative, but we must also be radical enough to be thorough, and the Golden Rule is a tremendous factor in determining what thoroughness means.

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Some Factors in Diagnosing Cases that Require Early Orthodontic Treatment

C. H. JUVET, D.D.S., OTTAWA, ONT.



THE paper which I have prepared for presentation to you to-day is based on my own clinical experience, and the models shown are but a few of the infinite variety that I am convinced represent forms of malocclusion, which, if corrected early and retained for a sufficient time, will ordinarily leave the patient

without any of the permanent ill effects and the associated evils of malocclusion.

I also believe that these same cases would have yielded more satisfactory results, so far as the correction of the associated disturbances are concerned, if the treatment had not been delayed until even eight or ten years of age, even though it was possible to establish very good occlusion in these cases at a later age.

In the natural order of things, there seems to be a time and place more fitting than any other for the occurrence of events concerned with the development, and when Nature is not able to keep up with this schedule she needs assistance.

Orthodontic interference seems to be the only available help at this time, and the Orthodontist will not only have a much easier task if he comes to the rescue when Nature is putting forth her own greatest effort, but is much more assured of obtaining the ideal results which he aims to obtain.

If the treatment of malocclusion or lack of development is undertaken anywhere from four to six years of age in the cases where it is clearly indicated, the physical force required to stimulate growth is so slight, that it is a negligible quantity, and this is not true of the force required to make corrections in teeth that are approaching complete development.

More important still, is the fact that if you are able to produce a renewal, or to create a new developmental activity at this very early age, you will avoid a stress and reflex disturbances that result from a large number of what really amount to impacted teeth, with the associated evils of which we are all too well aware.

The irritating effect of a jaw full of teeth, so crowded together that they are forced into abnormal positions and their eruption often delayed, is in itself a cause of profound disturbance, much greater than that temporarily produced in correcting cases, even where treatment has long been delayed.

The results obtained in the treatment of younger children have been so satisfactory that I sincerely wish I might never be called upon to treat a child again who is past eight or ten years of age at the very oldest.

There is, I know, an impression quite generally entertained that it is exceedingly difficult to manage such young children successfully, but if one takes advantage of the reasonable and legitimate psychological possibilities the whole thing can be made to appear almost in the light of a special privilege to the child, and his confidence and co-operation becomes a joy.

We also avoid the very trying experience of having the patients complain because of the unsightly appearance of appliances.

It is, of course, true that with many children who go under treatment early, we are compelled to keep some appliances on until the permanent cuspids erupt, but in the majority of such cases it is possible to make them very inconspicuous, and so far as the bands or appliances having any ill effect, this is of little consequence, as the temporary teeth used for retaining the appliances are approaching the time of their loss.

We can also guide incoming rotated teeth into their correct positions, by simply attaching springs and spurs to the lingual retaining arch, allowing these to act as obstructions to the teeth in their efforts to erupt in malposition.

It should require no argument to convince anyone that teeth so compelled to erupt in their correct positions are much more liable to permanently remain so, than are those that are moved after eruption when the roots are out of position to an approximately corresponding degree.

A further advantage in early treatment, especially for girls, is that of carrying on the treatment before puberty, and so avoid the treatment being carried on at this trying period, a combination of circumstances that should especially be avoided in these days of "high tension" school work, and in a very large measure we are able to do so by stimulating development at an early age.

As already mentioned, it is often necessary to keep lingual appliances on until after puberty, but of how little inconvenience this is to the patient, as compared to moving from twenty-four to twenty-eight teeth, many of which have attained practically their full root length, and which will naturally require a considerable degree of force to produce the required changes at such a trying time.

The late Dr. Cryer has shown by dissection of a frozen subject, that if the oral space is smaller than normal, the tongue is forced back into the throat when the teeth are closed, and it in turn pushes the soft palate up and back against the post-pharyngeal wall, thus compelling the patient to breathe through the mouth, even though the nasal spaces may be normally developed.

This is one reason more vital than all the rest why we should interfere as soon as a positive diagnosis can be made, for by so doing we can actually prevent the long chain of associated evils, with which you are all familiar.

There is a cause for adenoids, and I am inclined to think that narrow dental arches will be responsible in the majority of cases. Adenoids induce mouth-breathing, and if the mouth is kept open there is a tendency to compress the arches.

It is, therefore, most important that abnormally narrow dental arches should be carried out to a normal width, thereby allowing the tongue

to come forward, which will relieve the obstruction of the pharynx, permit freer respiration, drainage and ventilation, and also relieve the congested condition of the erectile tissue and mucous membrane of the nose, accessory sinuses and ducts. This will in turn assist in giving breathing space, improve olfaction, and in some cases give better hearing, thus breaking up the vicious circle produced by narrow dental arches.

The uvula is twisted, the tonsils, the epiglottis, and the larynx are out of shape from pressure of the tongue, produced, not by a narrow floor of the nose, but by a narrow dental arch, which would make it extremely difficult to carry on free respiration, and impossible to perform the deep breathing required by great exertion.

This morbid condition brings a further congestion and thickening of the mucous membrane of the nose and its accessory sinuses.

If the dental arches be widened, permitting free respiration, drainage and ventilation, the congestion of the soft parts will disappear, and there will in this way be greater width to the nose and improved general health, because the tongue is liberated and given room.

The internal structures of the face may be very much compressed, and the floor of the nose be of fairly good width, the arch of the mouth being very narrow in proportion to the floor of the nose. The mandible is also narrowed, consequently the tongue is very much compressed and out of shape, and is forced backward into the pharynx, thus cutting off respiration, especially when the mouth is closed.

It is also well to bear in mind that this early correction prevents the facial deformity which always accompanies marked malocclusion, especially in bilateral mesiocclusion or distocclusion cases.

Another important consideration from a purely dental standpoint: in beginning work for children from four or six years of age, we are able to use the temporary teeth for anchorage during the greater part of the treatment and retention, and very often during the entire period. This relieves the first permanent molars and the tissues surrounding them from the common sources of injury.

There will, of course, be differences of opinion as to the age at which treatment is advisable, but all Orthodontists agree that those of a well marked type of mesiocclusion and distocclusion should be corrected as early as it is possible to handle the child comfortably.

The majority of children can be managed nicely at about four years of age, but if a child happens to be of an extremely timid nature, I would much rather wait until six years of age than to frighten him unduly or fail in gaining the necessary confidence.

The most common type with which we come in contact, and the one where the greatest difference of opinion prevails, is in neutroclusion cases, in which we find developmental spaces entirely lacking.

We now come to the point which was my whole object in the preparation of this paper, viz.: to endeavor to overcome that which seems to be a puzzling problem to the general practitioner, and a subject that he seems to be at a loss to be able to solve on so many occasions—how to know when to advise patients as to the proper time to begin treatment, or in other words, to be able to diagnose when treatment of the temporary arches is advisable, and when it is not advisable, or questionable.

From my clinical experience I have come to the conclusion that a child whose general development, including the jaws, is quite normal, will begin to show very slight spacing between the anterior teeth at about four years of age, and this, of course, should progress rapidly enough to provide the necessary room for the larger permanent teeth. If, however, the child's general development is somewhat slower than the average, we may expect the spacing to occur at a correspondingly later time.

If the jaw development is clearly slower than the general development, then you may look for a malocclusion to result, unless interference is begun early.

Dr. Watson, of Detroit, says he has never seen a child develop a normal occlusion whose temporary dental arches showed absolutely no additional growth at five years of age.

Now the question is, how are we to know that the arches are not developing normally? This question can be readily answered if you will follow the observations made by the late Dr. Bogue, of New York City, whose observations cover a longer period than any other man I have ever heard of, and whose clinical observations have covered more early cases coming under his observation, owing to his having carried on a very large general practice as well as a practice of Orthodontics, and his observations follow:—

“It has taken years to find out that what we need to correct is not irregularity among the permanent teeth, but deficiency in the vital forces of the child, which result in a failure to develop properly.”

Irregularity of the teeth is only one of the symptoms of this failure to develop. The normal child at the age of $3\frac{1}{2}$ years should have an upper dental arch of at least 1 10-100 inches in lateral width in the temporary molar region, measuring from the gum margin of the second temporary molar.

The earlier a physical defect in the child can be distinctly diagnosed and corrected, the better for the child. Both projecting maxillary and mandibular jaws, which are too often attributed to sucking the thumb and fingers in infancy, arise from arrest of development in the jaw where the expansion of the arch is deficient. By undertaking the treatment as soon as a defect is manifest, it is possible to bring about a nor-

mal development by using only the temporary teeth for anchorage, and banding only the temporary teeth, thereby obviating any danger to decay of the permanent teeth, through bands having been worn.

The arches having been brought to normal development at that age, you can fairly well depend on the tongue to maintain development until the eruption of the permanent teeth.

There is a pressing professional obligation upon each of us to learn to recognize oral deformities or deficiencies, and to suggest to parents the proper steps for correction.

(1) The regulation of the temporary teeth is a most important feature in Orthodontia.

(2) The prevention of dental deformities requires a retention of the deciduous teeth in their proper positions, and proper relations to each other until the permanent teeth are ready to erupt.

Adenoids are a cause of dental, nasal, facial, and thoracic deformities.

The early discovery of and the removal of adenoids, and thorough performance of the functions of mastication and breathing, are the surest preventives of irregularity among temporary teeth.

We find an intimate relation between irregular temporary teeth and the whole category of children's diseases.

Almost all irregularities indicate an arrest in the general development of the child, which is so manifest in narrowed arches, with the chin distal to normal, the tongue being forced back, and closing the normal passage of air through the nose, causing mouth-breathing, and all its associate evils that invariably follow this condition.

Spreading the arches of temporary teeth enlarges the nasal passages, and allows the mouth to close, thus preventing the entrance directly into the lung of the air-borne microbes of contagious diseases, and forcing them to pass through the filter of the nose.

The relation existing between the temporary incisors and the permanent ones can, by measuring the width of the upper temporary incisors, be ascertained with sufficient accuracy to furnish a working basis for a calculation of the size of the permanent arches.

The correction of dental deformities before the sixth year not only assures fairly correct arches of the permanent teeth, but aids in correction of nasal stenosis, due to deflections of the septum, or to too narrow nasal space.

It is most important that all irregularities of the nose, face, or teeth, should be corrected before the sixth year, while growth is at its maximum, as you all know the longer a bad habit is persisted in, the more difficult it is to overcome, and similarly, the longer the muscles of expression are maintained in an abnormal position, the more difficult it is to bring them to normal.

Perfectly close and regular teeth, after five years of age, constitute a marked deformity, and are absolutely a sure indication of a crowded condition in the permanent teeth beneath.

Narrow arches are, as a rule, an indication of lack of vigor, and if we find the arch measuring less than twenty-eight millimeters at the gum margins of the second temporary molars at five years of age, it is wise to assume that they will not broaden without assistance.

"Remove cause" is one of the axioms of the healing art, and Orthodontia of the deciduous teeth is treating causes; it is a recognition of conditions causing malposed permanent teeth and under-developed jaws, and the correction of those conditions prevents irregularities of the permanent teeth with their attendant evils.

The time and annoyance saved, not to mention the benefit to the health and development of the little patient, is hard to estimate.

The members of the dental and medical profession owe it to humanity, and I would add, must be held personally responsible if they do not become conversant with the possibility of being able to successfully diagnose and distinguish these cases, which come under their observation every day, but to which little or no attention is paid.

If advantage was taken of every opportunity of instructing patients in the needs of the child whose face is undergoing malformation, there would be little need to call attention to the possibilities of correcting this particular deformity, at a period when the age of the patient precludes the possibility of its correction by the science of Orthodontics.

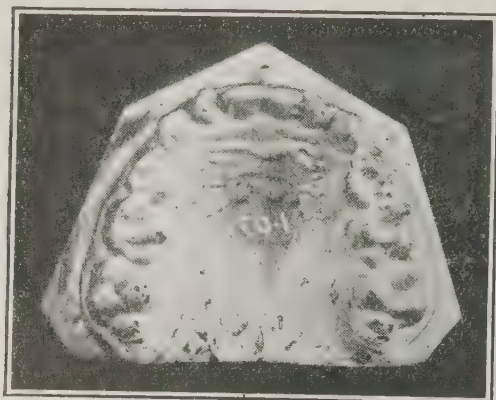
One of the greatest services you can render your profession is to be ever alert for incipient mal-development, and ever zealous in using all your influence towards the proper care the forming features may need.

In conclusion, on behalf of the unfortunate featured individuals unborn and now young, let me beg of you to be more observing of their growing malformations or mal-developments. Most of the facial discords appear in the region between the bridge of the nose and the mandibular symphysis. This is the particular part of the human anatomy of which you have chosen to make a study, and the way in which you apply the great amount of knowledge that is all about you, and yours for the asking, will mark you as a professional success or failure.

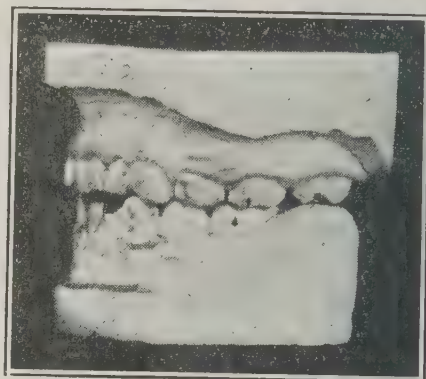
It is essential that the temporary teeth be preserved, and normal restorations made when and where needed, in order that the temporary teeth be retained until the proper time for their loss, so as to perform the two principal functions intended they should perform, viz.: mastication and influencing the development of the bones of the face and the cranium.

Illustration No. 1 is the maxillary cast of a boy of seven years of age, measuring 1.07 at the gum margins between the two temporary

molars, and measurement should have been 1.04 at four years of age if development had been taking place normally.



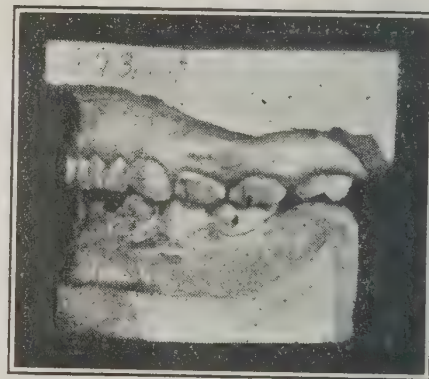
Number One



Number Two



Number Three

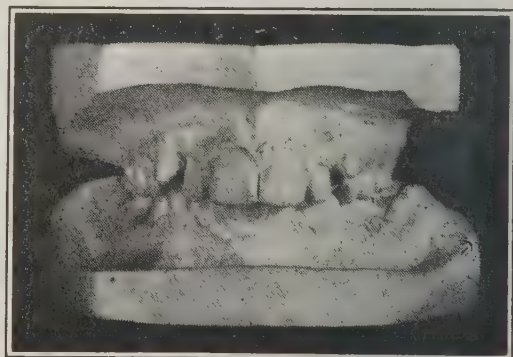


Number Four

Illustrations Nos. 2, 3, and 4, are the maxillary and mandibular casts in occlusion of the same boy at seven years of age, presenting a neutroclusion condition, and for some reason or another the treatment

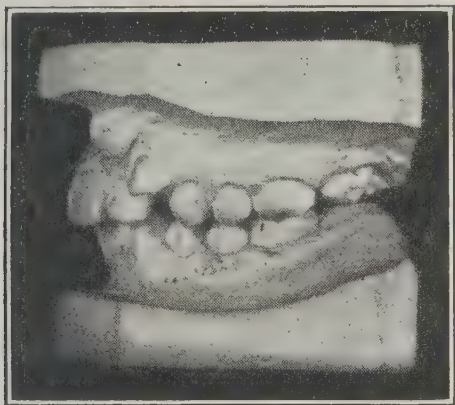


Number Five

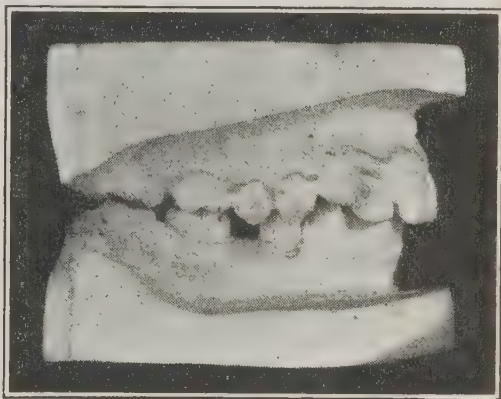


Number Six

was deferred until the boy was 13 years of age, presenting the condition illustrated in No. 5, having a development of only 1.14 at that age, and a bilateral distoclusion as illustrated in Nos. 6, 7 and 8. If treatment had been undertaken at seven, there is every reason to believe that the normal occlusion would have been maintained, and ample room been provided for the incoming cuspids, and prevented a development of the complications present at the age of thirteen.

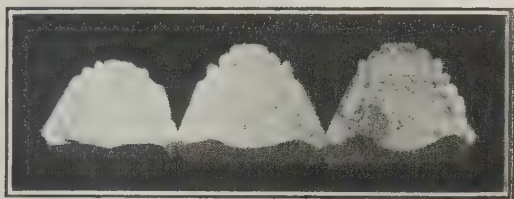


Number Seven

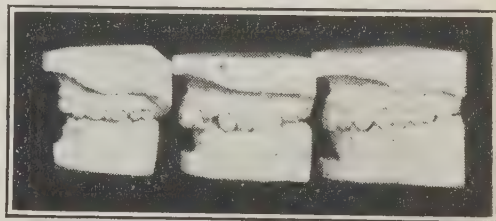


Number Eight

Illustration No. 9 presents the maxillary arches at seven and thirteen, and after correction, demonstrating how much development was necessary.



Number Nine



Number Ten

Illustration No. 10 presents the casts in occlusion at seven and thirteen and after correction.

This is only one of the many cases coming under our observation, demonstrating the advisability of early treatment, and I hope will stimulate a greater interest and responsibility of the general practitioner towards the little patients who are under his observation, in pointing out the necessity for stimulation of development when Nature is not doing so.

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Interpretation of the Dental Radiogram

SYDNEY W. BRADLEY, D.D.S., M.D.S., OTTAWA.



ONE of the greatest aids we have in dentistry to-day is the radiogram, but to benefit from it, and read it intelligently, we must know normal anatomy, and histology, to enable us to distinguish the normal from the abnormal.

Radiograms are not photographs. What x-rays do, is, record on a photographic film, differentiation of densities. They are the result of a certain amount of light or rather x-ray penetration. They are permanent records of the resistance to such penetration that objects in any rayed area possess to the x-ray. Crowns, fillings, pins, and guttapercha points in roots, show white, because the x-rays do not pass through them, and act upon the sensitized film. Enamel, bone whorls, dentine, cementum, and bone, are less dense and the rays pass through them, leaving a darker impression on the developed film. Canals, foramina in bone, any areas of lessened density, the soft tissues, lack resistance to the rays, and show different degrees of darkness, ending with a jet black, where there is no resistance to the rays.

Radiograms do not disclose areas of infection, but rarefied or radiolucent areas, and dense or radiopaque areas. You cannot tell if these areas are infective without a bacteriological or clinical test. Infection casts no distinct mark upon a film which will denote infection.

What should a radiogram possessing diagnostic value show?

1. The alveolar process.
2. The walls of the alveolus.
3. The peridental membrane.
4. The cementum.
5. The dentine.
6. The pulp.
7. The enamel.
8. The gums and soft tissues.
9. The black area of a film that has been exposed to the direct x-rays.

It should show the roots and the crowns of the teeth clearly, and all of the tissues surrounding the roots of the teeth, without shadows and with as little distortion as possible.

Let me describe briefly these various tissues and their radiographic appearance.

First: Continuous with and forming part of the maxilla and the mandible is the projection of bone that grows up around the roots of the teeth and forms the sockets in which they are held by the fibres of

the peridental membrane. This is the alveolar process. This process is shown in a radiogram as a spongy cancellated network of bone entirely surrounding the tooth. Normal alveolar process shows a cancellated structure with definite, clean cut, but quite irregular lines. This structure is invariably affected by pathological conditions. An increase or decrease in the density of this structure, shown by radiopaque or radiolucent areas, are indications of pathology.

The wall or lining of the alveolus is shown in a good radiogram as a thin white line, called by different authorities the Peridental Lamellae, the Stratum Durum, or Lamina Dura. A break in this line, or the entire absence of it, is indicative of pathology, due to trauma or infection.

Between the roots of a tooth and the lining of the alveolar socket there is shown in a good radiogram a thin black line, the peridental membrane. Trauma or infection may cause a thickening of this membrane, either at the expense of the lining of the alveolus, or the cementum of the tooth root. In some cases the continuity of this line is definitely broken. Any definite irregularity likely indicates a pathological condition.

Pericemental irritation and infection is shown by a roughening or irregularity in the outline of the tooth root, affecting the cementum.

Hypercementosis or exostosis is shown by an enlargement of the root. This enlargement is apparent at the point of irritation, usually about the apical third of the root.

Secondary deposits of dentine along the walls of the pulp chamber are caused frequently by traumatic, thermal, or other irritation or infection of the pulp. These deposits are apparent in a radiogram by a narrowing of the pulp canal, and in increased radiopacity of the pulp to the rays.

The normal pulp is shown in the radiogram as a dark radioparent mass, filling the pulp chamber and roots of a tooth, and finding an outlet or outlets at the apex of the roots. An increase in the radioparency of the pulp is indicative of an acute pathology. An increase in density indicates a chronic condition such as pulp stones, secondary deposits of dentine along the walls of the pulp chamber, or pulp sclerosis.

The enamel covering the crown of a tooth is more dense, consequently more radiopaque than the dentine or cementum.

Caries is shown by an increased radiolucency of the parts affected. A dark area extending from the contact point or any exposed surface of a tooth through the enamel and into the dentine, is caries or may be produced by cavity preparation, or a synthetic filling.

The gums and soft tissues surrounding the teeth are shown as radiolucent or dark areas. In a good radiogram these tissues should show

slightly less radiolucent than any part of a film that has been exposed to the direct x-rays.

Let me now give some of the anatomical structures to be noted in reading dental films.

In the maxilla at the median line we have the median suture, the anterior palatine canal, foramen and fossa, often mistaken for periapical destruction above one or the other central incisors, especially when the film is taken with the direct rays going through the lateral or cuspid. Above the incisors a short distance, we have the radiolucent nasal cavities separated by the radiopaque nasal septum. Above the lateral and cuspid is found the lateral or canine fossa, varying greatly in different cases. The maxillary sinus, or antrum of Highmore, is very often mistaken for a pathological area of destruction, especially when the radiogram shows a septum or two. The malar shadow is radiopaque and causes us more trouble than any other structure in making good radiograms. The posterior palatine foramen and fossa are sometimes ignored, and vital second and third molars have been sacrificed as a result. The coronoid process of the mandible is seen in upper molar films and might be taken for an impacted or unerupted third molar, by a beginner. The mandible presents first the incisive fossa, found below the incisors on either side of the median line, or in one large fossa, extending from cuspid to cuspid. Sometimes the inner and outer plates almost meet in this region and result in a radiolucent area, mistaken for a diseased condition. The mental foramen is found in the majority of cases below and between the apices of the two bicuspids, although it may be found mesially to these teeth or even as far distally as the first molar. From the mental foramen, the inferior dental or mandibular canal extends to the distal and the incisive canal to the mesial. A radiogram of proper texture will usually show these canals. Underlying the lower molar teeth and coinciding in a great measure with the course of the inferior dental canal, will be seen a broad radiolucent area. This is a depression on the inner aspect of the mandible; the mylohyoid, or submaxillary groove, lying beneath the mylohyoid ridge or internal oblique line. The shadows of the retro-molar fossa, and the mandibular foramen must be kept in mind, in examining lower third molar areas.

The production of good radiograms requires the co-ordination of many factors, the failure of any one resulting in the failure of the finished product. The principal factors are: proper equipment, correct angle of the rays on a properly placed film, proper back-up or penetration, proper time of exposure, and correct development, fixing, and washing, and mounting on neat film mounts. I am not going into detail with regard to these factors, as it is aside from the text and would take considerable time.

How does a radiographer reach his conclusions when reading films? He cannot make bacteriological tests, unless he is a bacteriologist. He cannot do it by experimental research, for he has not the means, time, ability, or inclination, to do research work; but by reading the results of men who do this work and of the clinical findings of men in general practice, and from conversation with those who refer patients to him, a good working foundation may be built up, and in time definite knowledge is obtained.

There is a difference between interpretation and diagnosis. Interpretation, or reading the radiogram, shows the variation from the normal. These findings must be checked clinically, and verified, before a diagnosis can be made. The longer I am engaged in this work, the more conservative I become in my interpretations, and the more I realize the difficulty of deciding when a tooth should be retained, or removed. Radiograms by themselves are not much use. Clinical examination and a history of the patient's general health are absolutely essential in almost every case.

Dr. John A. Pollia says accurately made films do not lie, and I believe this statement of his to be true. A careful radiographer should produce 75 to 90% of good films. Poor radiograms are absolutely no use at all, but I want to say right here, that sometimes the films that may not look just as clear as they might be, are the best that can be obtained under the conditions presented. I am thinking now of those patients with a very low palate, and small dental arch, and those whose alveolar tissues and overlying bony structures are so dense that they are equal to the density of the tooth roots themselves. In those cases it is next to impossible to get clear radiograms, which are of diagnostic value.

Take the upper second and third molars, for example. I have never been satisfied with my own results here, nor have I seen perfect results done by other men. We all get good results in these areas at times, but I would be delighted if I could increase the percentage of my good results with these teeth.

I try not to discuss with patients what we may find. I like to send the films with my interpretation to the dentist or physician referring the patient to me. Patients may run around with films and get half a dozen interpretations from half a dozen persons, all honest, but looking at results from different viewpoints. What will be the most good to the patient is the proper point of view to take, and there may be more than one opinion here, too. Of course, if a patient comes for their own personal information, I give them the films with my report, only when they ask for it.

During the last decade, radiography, perhaps more than anything else, has been the means of bringing the medical and dental professions into closer relationship and co-operation, but let us remember it is only

a supplemental science. Greater perfection in it is particularly desirable, because it means more perfect dental and medical work, and better health for our patients.



Treatment of Pyorrhea Alveolaris With Inava Vaccine

EUDORE DUBEAU, D.D.S., *Dean, Faculty of Dental Surgery, Montreal University.*



WO years ago, while I was attending dental meetings in Europe, I was very much impressed with the reports that I heard concerning the use of Inava vaccine in the treatment of pyorrhea alveolaris and other cases of infection of the mouth.

After obtaining all the literature and information that I could get from those who had used it in Paris and elsewhere I decided to try it in our clinic, and during the session of 1923-24 my teachers and I tried it in fifty cases.

Last summer, while I was in Paris, the president of the American Dental Society of Europe, Doctor G. A. Roussel, asked me to read a paper at their meeting in Amsterdam, Holland, giving my clinical experience with this vaccine, which I did. It brought a very interesting discussion, in which took part amongst others: Sir Chas. Valadier, of Paris; Doctor Florestan Aguilar, of Madrid, Spain; and Doctor F. H. Brydges, of London; they reported their experience as identical to mine, viz., that the results obtained were excellent in most cases. This year I have used it again in many cases in our clinic and in my private practice, with the same good results.

Last year, while I was in Paris, I went to the Pasteur Institute where that vaccine was first prepared, and had a very interesting interview with Dr. Besredka, former assistant and now successor to Professor Metchnikoff. I asked him what he thought of the vaccinothrapy in pyorrhea alveolaris with Inava vaccine. Doctor Besredka, who has published very remarkable papers on local immunization, told me that he was not ready to call this preparation a specific cure for pyorrhea alveolaris, but as he had seen wonderful results obtained through its use, he was of the opinion that it should be given a fair trial. Encouraged by such a high authority, I have done so, with the results mentioned above.

For the treatment, I follow the technique indicated by the author himself, Doctor L. Goldenberg, of Paris; I examine the mouth of the patient very carefully, and I ask for a urine examination so as to work in co-operation with the patient's physician if there is any systemic trouble. The injections are made in the submucous tissue in the canine

regions, upper or lower, as superficially as possible, and no massage should be done, the liquid being left to be absorbed slowly.

At the first sitting one drop should be injected, and at the second sitting, which takes place four days after. At three days of interval, one more drop is to be injected until the dose of six drops has been attained, and then six drops each time until the series of ten injections has been completed.

When the dose is more than three drops it should be injected in two places, and it is advisable to change the place of injection so as to prevent too much irritation.

This treatment does not exclude instrumentation, viz., curetting of the pockets; on the contrary it should be done with great care, beginning with the second sitting.

You will find some cases where the results will not give you as much satisfaction as you may desire; in those cases let the patient rest for a month or so and start a second series of injections. If a patient discontinues the treatment for a week or so, the treatment should be resumed starting with a drop less than the previous injection.

Very good results are obtained in various cases of infection in the mouth, such as gingivitis and abscess, and specially in case of impacted wisdom teeth, in which case one drop injected before the extraction will prevent subsequent infection.

In concluding, I wish to say that I think we have in this vaccine a preparation which will in most cases render us and our patients great service.

* * *

Address by Dr. W. J. Bell

Deputy Minister of Health for Ontario.

R. W. J. Bell, Deputy Minister of Health for Ontario, in addressing the convention, spoke without notes, and so it is impossible to give his address *verbatim*. He expressed his great delight at being able to be present at the Annual Convention of the Eastern Ontario Dental Association, and to express to those in attendance the good wishes of the Department of Health of Ontario towards the dental profession.

He traced the development of modern dentistry as a branch of the art of healing. He endeavored to show that there was no distinct line of demarcation between dentistry and the other lines of the healing art, as applied to the human; that the line of demarcation between what we call "Medicine" and the profession we recognize as "Dentistry" is an artificial line only, and that dentistry is simply a specialized branch of the healing art in the same class somewhat as surgery or pediatrics, or ear, nose and throat; and he expressed the hope and the expectation

that in course of time the artificial line between the two professions of Medicine and Dentistry would be eliminated.

Dr. Bell dealt particularly with the subject of prophylaxis in dentistry and showed how the dental profession were practising preventive dentistry and public health, but that it had only recently commenced to receive public recognition as public health.

He further went on to speak of the recent formation of the Dental Branch of the Provincial Department of Health, and spoke of the interest taken by the Minister, Dr. Forbes Godfrey, particularly, and of the attitude generally of the Government towards the dental profession, saying that the Government as a whole, and the Department of Health as a particular branch of the Government, extended open arms to officially and publicly welcome the dental profession on its entry into the Health Department. He said, "We regard dentistry as one of the major activities of the Department and for that reason that work is placed under the control of a full-time Director, selected by the Minister with the expressed approval of the dental profession." And, referring to the Director of Dental Services, he said that the work that Dr. Conboy had already initiated had more than justified this appointment.

Dr. Bell concluded by extending to the members of the Eastern Ontario Dental Association the good wishes of the Minister and the Department of Health, and expressed his appreciation of having been invited to attend.

* * *

Dentistry as a Public Health Activity

FRED J. CONBOY, D.D.S.,

Director of Dental Services, Ministry of Health, Ontario.

HEALTH is not a new subject. The history of the healing art dates back to the creation of man. Necessity, instinct and chance taught man curative practices, just as it taught him to prepare his food and to provide for the other wants of life. The dissection of animals in their sacrificial offering to the Deity and their use as food taught them the anatomy and physiology of the lower animals, and this knowledge applied to man, with the addition of that gained from actual cases of sickness or injury, and embalming, led to the development of primitive medicine.

Nor was this primitive treatment confined to individual and personal effort alone, as the ancient records prove that there were also public or community health activities. Herodotus, the ancient historian, states that the Babylonians used to carry the sick into the public squares; the

passer-by was supposed to enquire regarding the malady from which the patient suffered, and if he had heard of a similar case he was to suggest the means used to accomplish a cure. The isolation of lepers and others suffering from contagious diseases who were not allowed to mingle with the people in the cities, proves that the ancients had a knowledge of quarantine. It is not my intention to give a detailed history of the great public health movement, but merely to bring to your attention the fact that health and disease have concerned the minds of the world from the dawn of civilization. Not only have the medical and allied professions been interested, but this subject has inspired noted authors and statesmen, some of whose writings have had an important influence on the public conception of health, not only for their day and generation, but for all time.

Why should'st thou die before thy time?—*Eccl.* 7: 17.

Good health and good sense are two of life's greatest blessings.—*Publius Syrius*.

The public health is the foundation upon which reposes the happiness of the people and the strength of the nation. The care of the public health is the first duty of a statesman.—*Disraeli*.

There is no kind of an achievement equal to perfect health.—*Roosevelt*.

The most distressing thing about sickness lies in the fact that it is so unnecessary. Most diseases are preventable, and yet on any given day three persons out of every hundred are sick. To-day in Canada there are two hundred and forty thousand people who, because of ill-health, are unable to carry on efficiently. If preventive measures already proved in practice could be made available in every community, a reduction of from ten to twenty-five per cent. in casual illness could be accomplished, and thousands and thousands of lives could be so prolonged that many years of valuable service could be rendered to the state. The supreme need in this Province is health education; the general public must be taught that disease can be prevented, and instructed in the best way to develop and maintain physical well-being. The Department of Health is alive to the need of advancing the health interests, and thereby the happiness and comfort, of the people of Ontario; but it cannot function efficiently without the support and co-operation of the citizens, and it is in securing of this team work and in the dissemination of useful health information that physicians, dentists, nurses and social workers can be of such great assistance.

The work of public health education brings us face to face with the age-old question: What must we do in order that we may continue to live? Nature's answer to this enquiry is very definite, quite clear and most emphatic. If we desire to continue our existence we must provide for ourselves nutrition and protection. The human race has always

been confronted with these essential requirements. Primitive man was forced to venture forth from his cave to get food, but in thus going forth he always risked his life. He did not always return home; some stayed out permanently in order to furnish a meal for some wolf, tiger, python, or alligator. In these days man must likewise venture forth from his home to secure food, not by direct hunt, capture and slaughter, as in former days, but by earning the wherewithal to buy his household needs, and in this daily grind he encounters certain germs which attack him no less fatally and just as truly eat him as ever wolf or tiger ate his ancient forefathers. Ninety per cent. of our diseases are due to our luckless situation in constituting the favorite food for certain germs; our popularity as hosts places us in an unenviable position. During the great war fourteen thousand Canadians were killed each year in battle; during the same period one hundred thousand Canadians were killed each year by germs.

We must protect ourselves. But how are we to do it? There are a number of ways, and the first to be mentioned is that of cure. What marvellous advancement has been made in recent years in the methods of treating people suffering from the various diseases, and this progress is in a large measure due to the scientific experimental work carried on in our laboratories. These beneficial results show themselves in both surgery and medicine. In olden days the vast majority of patients operated upon died of blood poisoning, to-day nearly all recover; a few decades ago almost all diphtheria patients died, to-day five per cent. is a high figure.

But cures consist in repairing damage already done, and we have a better form of protection, which consists in preparing our bodies against disease and thus establishing what is termed immunity. Every person possesses a certain resistance, and is able to wage a more or less effective battle against an invading organism; but in many cases this resistance can be so increased that the foe has no opportunity to make a successful attack. Immunization or the protection of the human body against disease has reached its highest perfection in smallpox through the process called vaccination, and no matter what our personal opinion may be in regard to the advisability of using this method, it must be admitted by all that vaccination will render an individual immune to the attacks of this dread disease. The same will soon be true in regard to other ailments, and immunization is sure to become an effective method of combating disease.

Nevertheless its application is limited and it has serious disadvantages, and so we turn to a consideration of the third method of protection, namely, evasion. Evasion simply means keeping away from infection, avoiding people who are sick, and adopting such a routine in

life that exposure to disease will be reduced to a minimum. How important it is to emphasize the necessity for such a course of action. How often we take unnecessary risks and place ourselves at the mercy of an army of hostile germs.

Then, as a final effort, society should endeavor to abolish disease. But you say that is an absolute impossibility; we have had sickness from the beginning of the world, and we will have it to the end. And yet leprosy and yellow fever have been abolished, typhoid fever has been reduced by over eighty per cent. in Ontario, while tuberculosis has been decreased by thirty-one per cent. The future is hopeful; with our scientific advancement, our powers of organization, our education and our wealth, we should be able to overcome many diseases and thus prevent much pain, poverty and sorrow.

In fighting the battle against sickness and disease the important factor is to secure satisfactory adjustments between the individual and his surroundings. This may be accomplished in two ways; first, by so building up and developing the power of resistance in the human body that it will be able to withstand all the onslaughts made upon it by external forces, whether they be germs, extremes of temperature, or any other enemy to the physical well-being; and secondly, by so modifying the surroundings that the individual will not be subjected to serious attack—that is, by correcting those conditions which expose a person to danger.

Dentistry is chiefly concerned with the first method—that is, the prevention of disease by the removal of physical defects, and by developing and maintaining a high resistance to invading organisms. Dental diseases are not only harmful and painful disorders in themselves, but they lead to and are the causes of secondary lesions which occasion very serious results. The modern dentist not only corrects a troublesome dental defect, but also plays an important part in general preventive medicine.

Dr. Chas. Mayo said: "The next step in medical progress in preventive medicine should be made by the dentist."

Sir Wm. Osler is responsible for the statement that there is not one single thing in preventive medicine that equals mouth hygiene and the preservation of the teeth. ✓

In a recent address, Dr. W. J. Bell, Deputy Minister of Health for Ontario, referred to the Dental Branch of the Department of Public Health, and said that dentistry had now come to be recognized as a major factor in public health. Recent researches in medicine, and particularly in the field of focal infection, had disclosed the fact that septic foci in the mouth had been the cause of an astonishingly large proportion of illness. Dr. Bell strongly emphasized the health pro-

tection and disease prevention aspect of dentistry, and cheered the profession by expressing, on behalf of the Minister and the Department of Health, a very hearty welcome and a front seat for the profession of dentistry in the public health field.

Every intelligent citizen recognizes the fact that bad mouth conditions are detrimental to the physical well-being, but they do not understand how the micro-organisms and toxins get into the system. Bacteria or germs are always present in the human mouth, but when the teeth have been neglected and show large cavities the number of bacteria is greatly increased. Dr. Weston Price, an authority on this subject, states that while the normal mouth might show a count of about ten million, the one with extensive decay will give a count of about five hundred million. A large number of these germs belong to the disease-producing varieties, and whether they remain in the mouth, pass into the lungs, or are swallowed with the food, they are always a menace to the health of the individual. Those that remain in the mouth are ever ready to attack their victim the minute the resistance is lowered, while those that are swallowed with the food may cause serious inflammations in the lining of the alimentary canal.

The condition of the neglected mouth is alarming. With the millions of bacteria, the pus from abscess fistulae and pyorrhea pockets, decayed tooth substance and decomposed food, the individual becomes a menace to public health. These mouths frequently harbor the germs that cause infectious diseases and are a rampant source of contagion. The proper care of the mouths of the people will greatly reduce the prevalence of contagious diseases. This contention has been disputed by some health authorities, but it has been abundantly proven by actual tests; and ordinary observation demonstrates that the presence of these bacteria must be a menace, or sanitation is a delusion and sterilization a waste of time and effort.

The most outstanding cause of ill-health, in so far as dental conditions are concerned, is to be found in focal infection, the bacteria and toxins from abscess areas and pyorrhea pockets entering the circulation and being carried to some other part of the body, where a secondary lesion is started.

There seems to be no escape from the conclusion that many of the degenerative diseases, which appear to be on the increase, have as one of their important and in many cases their chief causative factor, dental infections. It is probably seldom the case that dental infection is the only contributing factor, but when you take into consideration the fact that the great majority of adult individuals are carrying seriously infected teeth potentially capable of producing degenerative diseases if the local and systemic quarantine breaks down, you must come to the

conclusion that this condition is one that merits serious consideration. It has been well established that the strains of organisms which are found in the great majority of heart, kidney, joint and muscle and nerve lesions, can also be recognized in the dental foci. We are, therefore, justified in coming to the conclusion that the proper treatment of the dental abscess and pyorrhea pockets will do much to improve the general health.

It is quite unnecessary for me to urge the importance of proper mastication. From the standpoint of digestion as well as preventive dentistry, thorough chewing of the food is essential. The adequate mastication of coarse, fibrous foods provides natural cleansing for the teeth, and the stimulation which will keep the gums in a healthy condition. The exercise of the parts causes a healthy blood supply which provides for tissue repair and development. When children because of sore teeth are unable to properly chew their food, they develop the habit of bolting, which remains with them throughout adult life, often causing indigestion, malnutrition and lessened resistance to disease.

The unerupted or impacted tooth presents a problem which demands attention. Locked in its bony enclosure, ever trying to come into proper position and obstructed by another tooth, it exerts a pressure which causes serious nervous disorders. Many indefinitely located pains are caused by these teeth, and even patients suffering from mental diseases have shown wonderful improvement after their removal.

I do not need to stress the danger of allowing sharp edges of teeth or old roots to irritate the tissues of the mouth; we all know that many tumors, including those that are malignant, have been caused by such irritation. Dr. Bloodgood, of Johns Hopkins University, made this statement: "Cancer of the mouth will be a thing of the past when the public understands and acts on thorough mouth hygiene."

The acute abscess and the neuralgia from an exposed pulp need no emphasis; the pain and distress is so marked that the sufferer demands immediate attention. Unfortunately the general public are not aware of the fact that it is the chronic abscess (which causes no discomfort) that is most dangerous. A tooth may be serviceable and free from pain, and yet have an area of infection at the root end which is a distinct menace to health; and the size of the area of rarefaction is not the important consideration. A small area in one patient will do far more harm than a large one in a patient with better resistance. Some people can carry a large amount of focal infection. They have a strong resistance, and they are taking care of themselves in other ways, but that is no guarantee that another person can safely take the same chances, or that the same individual can continue to withstand the infection indefinitely. Some overload in the form of a mild illness, over-

work or worry, may present, and the enemy will then have an opportunity to make a successful attack. The only safety lies in the removal of dental infection.

It would be entirely useless to prove that dental diseases cause systemic disorders, without setting forth some procedure that will adequately provide protection against the existing conditions, and so I desire to present a public dental health programme which we feel will prove efficient. Such a programme must include the following activities:

(1) Regular inspection and proper treatment. The teeth must be examined regularly once every six months and the proper treatment given. Thus the cavities will be discovered and filled while small; this prevents pulp involvement, which leads to many long and expensive root canal treatments, and it also secures a better and more permanent result with the minimum of pain, loss of tooth tissue and expense. A tooth properly treated when decay is in its incipient stages retains a live healthy pulp and will not develop a root-end abscess.

The early indications of periodontitis will be noted, and the causes of this dread disease, which occasions the loss of so many teeth, will be removed. Pernicious habits which lead to dental irregularity and facial deformity will be detected and corrected, and treatment for irregularity will be begun early in life when the best results can be achieved.

(2) The second activity is to educate the general public so that the people will realize the importance of a properly balanced diet. Diet is, of course, largely an individual matter, but we are convinced that a smaller consumption of carbohydrate food, usually taken in the form of confectionery and candy, and a larger amount of fruit and vegetables, especially raw vegetables, would be very helpful from a dental standpoint.

(3) The third consideration is the proper and sufficient mastication of food. Very few people know how to chew their food. They are expert in many things which they might well do without, but they are woefully crude in this great health essential. Thorough mastication not only aids digestion, but the chewing of coarse, fibrous food acts as a natural tooth cleanser and gives the parts that exercise which will ensure a healthy blood supply.

(4) The fourth requisite is artificial cleansing or mouth toilet. It is most important that the people form good health habits, and there is no practice more helpful than regular tooth brushing, which cleans the teeth, thus preventing decay, and guards against periodontitis by removing irritants and stimulating the gum tissue.

(5) The last essential includes pleasant living conditions, plenty of sleep, regular hours, recreation exercise and play in the open air and sunshine.

How is this programme to be carried to the people?

1st: By school dental services maintained by the municipalities.

It is entirely unnecessary for me to point out to you the advantages of a school dental service in so far as it influences the *physical* well being of the children, but there may be some who have not given much thought to the relationship of such a service to the *mental* and *moral* development of the boys and girls.

Dental diseases are frequently the cause of mental retardation, and the school board that does not provide for the physical welfare of the children is not getting good value for the money spent on education.

The state recognizes its responsibility in educational matters; it provides the necessary advantages and insists upon the children attending school. But the physical is of as great importance as the mental, and as the state accepts its obligation in one case, how can it evade its responsibility in the other? The state forces the child to attend school, but does not protect the child from contracting some disease while at school.

Since the days of Juvenal, educators have been quoting that much-abused phrase "A sound mind in a sound body," and while they have made diligent provision for schools in which sound minds could be shaped, they have felt that these schools needed little scrutiny as to their fitness for conserving and developing sound bodies. They have failed to recognize that the true aim and function of the school is to make healthy, happy and successful citizens. Those children receive the best education who are best prepared to take up the active duties of life when school days are over, and to successfully fill their places in society. The vast majority of children come into the world with healthy bodies, and it is the duty of the school to see that their health is protected and their physical powers developed. Most boys and girls are mentally normal, and if properly trained will develop into men and women of ability. Potentialities for good exist in every child, and these latent moral feelings, when fostered, lead to reliability and an exemplary character.

A school programme can be worked out which will give a child an opportunity to develop all his God given powers and faculties, and a school dental service will play an important part in that system. If a child is to take full advantage of his educational facilities, he must not be handicapped by physical defects.

All knowledge is gained through the senses; through the five main windows of sight, hearing, touch, taste and smell, the child looks out upon the surrounding world and gathers in the sensations, images and concepts which are developed into mental material. What a great catastrophe if these sense organs are diseased or defective, and in consequence the knowledge gained through them is not correct. All psychologists and psychiatrists agree that thought is dependent upon the body;

when the brain is poisoned or diseased, the nerves weak or the internal glands functioning poorly, intellectual development is interfered with. All these conditions may be caused to a greater or less extent by toxins which enter the blood stream from abscess areas and pyorrhea pockets. Then again if a child is to make educational progress he must concentrate upon his work; how can a child centre his attention upon study if suffering pain or weakened by dental disease? I will not take time to deal with the loss of opportunity caused by absence from school or of the extra burden thus placed on the teacher, but will content myself by quoting the opinions of some of our prominent educators on this subject:

From J. A. Taylor, B.A., Public School Inspector, City of St. Thomas and District No. 2, Elgin: "It is found that the great majority of children who suffer from physical disability are from one to five years behind other children of their age in their studies."

Dr. Luther H. Gulick of New York is responsible for the statement that of 40,000 children examined, those with two or more bad teeth averaged five months behind the grade they should occupy, and observations made in connection with the Toronto schools bear out this contention.

A test made in Cleveland demonstrated a 60 per cent. increase in efficiency after proper dental treatment.

Wallis, of London, England, who was one of the original investigators of the conditions of children's mouths: "Those with the most highly septic mouths were frequently two standards below what they ought to be in accordance with their age."

The old saying that if a pupil is to make the best use of his educational advantages he must have a sound mind in a sound body, is just as true to-day as it ever was; it is a psychological impossibility to reach the maximum of intellectual efficiency unless the mind has a sound body through which to function. True, there are examples in history of great minds operating in weak bodies, but it is also true that these minds would have been still better had they had strong bodies through which to work.

An efficient dental service means better moral health. The physical, mental and moral are intimately and closely related. That which injures one, to a certain extent weakens the other. Endurance, ability and reliability go hand in hand. A pupil physically weak is handicapped in his intellectual development, and a pupil mentally weak is handicapped in his character building.

The great requisite for character development is right thinking; the pupil who continuously suffers pain and is handicapped by physical defects has thoughts that are morose, gloomy and sullen, and these have a destructive influence upon his character.

It is the child who through some physical or mental defect finds it

impossible to hold his own in the class-room that becomes the truant. He soon begins to realize that he is a failure and feels that the school authorities are oppressing and persecuting him, that everybody's hand is against him, and the moral disease of unreliability soon manifests itself because the person weakened by disease is weak in will power and more readily yields to temptation.

Judge Lindsay, the great authority on juvenile delinquency, insists that every boy who appears in his court have his teeth properly treated so that he will be free from pain and infection and be able to properly masticate his food. He realizes that the removal of a physical defect is often the first step in character-building.

A modern School Dental Service should provide for the children of pre-school age. Every child should be placed under the care of the dentist when two years of age. The deciduous or first teeth must be preserved; they serve the child during the period of greatest development and when lost or diseased the child's growth is hindered. Many children's ailments are caused by infection from diseased roots and inflamed gums, and conditions thus developed often continue throughout adult life.

For the purpose of bringing to the attention of the proper authorities and the general public the value of a school dental service, we are organizing a Province-wide dental survey. The dentists are giving their time gratuitously for this initial dental examination, and the Department is supplying the necessary material, so that the inspection can be conducted entirely without cost to the municipality.

Such a survey has many advantages. Notification cards showing the condition of the children's mouths are sent to the parents, and a large proportion provide the necessary treatment. Local statistics are tabulated and thus give the authorities an accurate idea of the extent of the problem and the cost of its solution. The examination creates a general interest in health matters, and causes the people to more seriously consider their responsibility to the children and their duty to themselves. This survey may be obtained by any municipality in the Province.

The second method by which we hope to carry the advantages of dental treatment to the people is through the Hospital Dental Department. There are thousands of people who need dental attention but cannot afford to have the work done. Dentistry is not a luxury, it is an absolute necessity—yet, as at present organized, it is impossible for many people to pay the necessary fees. Something must be done, and the hospital department provides one solution. Wherever the hospital authorities are willing to provide the equipment and supplies, the members of the profession will give their time gratuitously to man the clinic. The Western Hospital, Toronto, is now operating a three-chair dental

clinic in a most successful manner, and it is confidently expected that many others in the larger centres will take advantage of this efficient form of service.

The third activity is the industrial or factory clinic. This form of dental service is very popular in some parts of the United States, and should prove most successful here. During the last one hundred years we have been busy perfecting the inanimate machine; during the next one hundred years our time will be occupied in perfecting the human machine. Every factory employee loses on an average eight days each year through sickness, and many times that number of days through inefficiency caused by defects and infection. We all know how factories are organized for effective work. The machines are kept in perfect order, oiled, cleaned and every part adjusted. How very important it is, then, that the man who runs the machine should also be efficient. Moreover, it appears to be rather foolish to spend much time and money on a school service to remove defects and teach the children good health habits, and then to entirely neglect them when they go into adult life.

The fourth consideration has to do with the problem of a dental service in all parts of the Province. There are some districts where the people are able to pay for dental treatment, but they are far removed from a resident dentist, and they hesitate to spend their time and money travelling to and from the nearest large centre. For many such communities the itinerant dentist and the travelling clinic is the only solution and a number of these services are now being organized.

In conclusion, I would like to point out the absolute need for more aggressive health education. Tradition and custom prevent professional men from measuring up to their full responsibility in this regard. Many conscientious dentists feel that they are doing their full duty when they give advice and treatment to those who seek it, and that professional ethics will not permit them to go farther. What is ethics? Is it not, in the final analysis, the exemplification of the Golden Rule, doing unto others as you would that they should do unto you? Would these men be satisfied if their neighbor had some information which would protect them from great injury and loss and he withheld it simply because he was not absolutely sure that his advice would be welcomed? Dentists have knowledge which the people need; consequently they are in duty bound to impart that knowledge, and the highest ethics will not permit them to take any other course. But how should this useful information be disseminated? The most efficient agent is the public press. There has unfortunately in recent years been a misunderstanding between some professions and some newspapers, due to a confusion of thought between health education and advertising. Newspaper men have made the statement that the doctors and dentists in their public health education were seeking cheap advertising, and the professional men in turn charged the

newspapers with encouraging advertising which was not in accordance with ethical practice. This situation is regrettable and should be corrected. There is all the difference in the world between health education and advertising; one is altruistic and benevolent, the other is usually self-seeking and mercenary. One has as its activating motive the betterment of humanity, the other the securing of personal gain. The healing professions and the newspapers both owe it to the general public to join hands and by mutual co-operation bring to the people that knowledge which will protect them from preventable diseases and perchance premature death. With this object in view, the Dental Department has prepared several hundred short readable newspaper articles, which will be sent to any paper that will provide the necessary space. Motion pictures, slides, posters and pamphlets are also available, and members of the profession in all parts of the Province should be willing to give public addresses pointing out the means whereby an individual may protect himself from the ravages of dental disease.

My final word is one of gratitude; I am indeed delighted to have this opportunity to speak to the dentists of Eastern Ontario. We are all engaged in a great altruistic endeavor to protect the citizens of this Province from disease and injury. Health is most important, both from the standpoint of the individual and the state, and the task of preserving health and preventing disease is so gigantic that it challenges our best efforts and calls for many personal sacrifices, but the results will more than justify the time and energy expended.

Dentistry has much to offer which will benefit the citizens of Ontario, and the people look to us for leadership in connection with this great new public health movement. To some it is given to *read* history, to a few it is given to *teach* history, to us it is given to *make* history. May we be willing to accept our opportunities and measure up to our responsibilities, so that in after years it cannot be said that we were remiss in our duty. Our activities will differ to some extent, but we will all be engaged in a work which will never become monotonous, for new avenues of helpful service will ever open up before us, and we can always look back upon a past resplendent with the glory of useful work well done.

* * *

Copy of Text of Illuminated Address Given Drs. Davidson, Davy and Sparks

DEAR DOCTOR: This Association believes that it is better to recognize a man's value during his lifetime than to shower him with posthumous honors.

Your fellow-members feel that there may come no more fitting occasion than the present meeting, and seize the opportunity to

voice their keen appreciation of your invaluable services to the Profession, which you each have rendered as representatives of this District.

We know that such highly efficient service cannot be given without a considerable sacrifice of valuable time, much effort and, at times, great personal inconvenience.

We know that whenever the interests of your District and the Profession were at stake, you unselfishly forgot all other considerations and gave us the best that was in you.

In recognition of these things we therefore elect you to be a Life Member of the Eastern Ontario Dental Association, with the earnest hope that you may enjoy the privilege for many active and useful years.

Signed on behalf of the E.O.D.A.,

H. WINTERS, D.D.S., *President.*

S. G. McCAUGHEY, *Secretary.*

June, 1925.

* * *

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* * *

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Success is sweet, and the winning of it is hard except for one who goes forth with clear vision, high purpose, and dauntless courage.—
Selected.

Teeth in Olden Times*

BY THE HONORABLE WILLIAM RENWICK RIDDELL, LL.D., ETC.



WITHIN historical times there never has been a period in which the teeth have not been an object of care and, on occasion, of pride. Artificial teeth have been found in Egyptian mummies—the lady of King Tut's time and country had her beautiful "store-teeth" as well as her lip-stick and perfumery, quite on a par with our modern flapper—indeed, the modern Canadian cannot always crow over her ancient Egyptian sister even in her bobbed hair. The hard-boiled historian of Medicine says of these old artificial teeth that they are "an evidence that dentistry and dentists are at all events as old as the coquetry for which Egyptian women were notorious."

In Ancient Greece, we find the *odontogluphon* corresponding to the Latin *dentiscalpium* which the lexicographers solemnly define: "*quo ea quae dentibus inhaerent eximuntur*," i.e., an instrument by which that which sticks in the teeth is taken out—Anglice, a tooth-pick. Then there are *odontotrimma*, a dentifrice or powder for scrubbing the teeth and gums; and *apodontosis*, abstersion of the filth around the teeth. The torture of toothache is not lacking—that was *odontalgia*; the forceps for drawing teeth was *odontagra* or *odontagogen*, called by the Romans *dentiducum*, a very celebrated one being of lead. The man without teeth was *anodous*, or *nodos*; he with white teeth, *argiodous*, or *argiodon*; if his teeth were rough, serrate, etc., he was *karcharodous*, and if he had a jaw with only one tooth, that is, with the teeth grown together, he was *monodous*, like the son of Prusias, King of Bithynia, "who had one bone in the place of teeth," says Festus; or Pyrrhus, King of Epirus, "who is said to have had teeth grown together." One with prominent teeth was *proodous*, and one who fought with them was *odontomaches*. I do not find any specific name, however, given to dentists, although Herodotus does mention physicians for the teeth.

No one can peruse the long list of compounds of the word *odous* in Greek without appreciating the high regard which that marvellous people had for their teeth and the great care which they took of them. Cicero, indeed, tells us that the third *Aesculapius* was the first—"so they say"—to discover tooth-drawing. But the practice was not approved unless absolutely necessary: three hundred years before Christ the aphorism already had vogue, "Don't pull, cure"; and it was almost a binding rule never to extract teeth unless they were so loose as almost

* Public Health Journal, February and March, 1925.

to come out by themselves. The celebrated Erasistratus, whose most marked characteristic was aversion from blood-letting, recommended that forceps should be made of lead, so that no tooth should be drawn that was not so loose and wobbly that it could be drawn by lead forceps—that is, without any force or violence; one rather wonders what he would have said to the diabolical turnkey which every doctor had half a century ago. Forceps of lead were openly displayed in the Temple of Apollo, the God of Healing.

Hippocrates, the Father of Medicine, advises that in toothache, where the tooth is carious and loose, it should be extracted, but if the tooth aches without being carious or loose, it should be burned; this was done by passing a red-hot iron lightly and rapidly over the gum. Hippocrates never extracted unless it was absolutely necessary.

When we reach Rome we are on pretty firm ground; it does not seem to be certain when and where artificial teeth were invented; but by the times of Martial (A.D. 43-104) they were certainly in use. The satirist, addressing an old girl, Galla, after gibing her with wearing a wig and using paint, says—"and at night lay aside your teeth, like your silks."

The same satirist indicates that a whole set of teeth made of bone or ivory could be procured. Addressing Fidentinus, who aspired to be considered a poet, Martial asks:

"So, Fidentinus, you wish to be considered a poet by your verses and hope to be believed? That's the way Aegle seems to herself to have teeth, bone ones bought or of Indian ivory—that's the way the painted Lycoris, who is blacker than a falling mulberry, seems to herself all right—and you by the same logic as that by which you make yourself out a poet, will have long hair when you are bald."

These sets of teeth were bound together by gold wire and in some way attached to the gums.

Celsus, who lived about the beginning of the Christian era at Rome, and who was an authority in medicine almost to our own times, was of much the same opinion as Hippocrates, not to pull a tooth unless it was too wobbly, but to burn the gum; he advised to fix the loose teeth and tie them to their neighbors with gold wire. Celsus has a good deal about teeth—he advises bursting hollow teeth by peppercorns pressed into them, and seems to have been well acquainted with the results of extraction in cases of ankylosis of the teeth and alveoli, caries and necrosis; his plan was to shake the tooth loose, most painfully, before applying the forceps—not quite our modern local anaesthesia.

It would be wearisome, even were it possible, to trace the progress, generally downward, of the science of the teeth through the Middle Ages; let us make a rest at the 14th century.

Much of the knowledge and skill of the Romans were lost, but there undoubtedly were dentists—of a sort. So far as can be made out, they seem to have been mostly employed in drawing teeth, but toward the end of that century we find a remedy for toothache, a gargle with a decoction of sage-leaves.

Francois I., who came to the throne in 1515, had a dentist—so far as I can find the first royal dentist named as such. His royal physician, Dr. Jean Goeurot, paid much attention to the teeth and had a crowd of remedies for toothache, which he characterized as the most annoying of all sufferings. He recommended to hold in the mouth camphor water or a decoction of camphor in vinegar, to put in a carious tooth a little cotton soaked in the oil of spikenard, to gargle with a decoction of camomile, mint and rue in hot wine.

For cleaning the teeth, the base of all the preparations was deer's horn.

About the same time, Erasmus in his *Civilite*, published in 1530, tells us that many different powders were used for that purpose; some rubbed the teeth with salt and alum, and "many persons had the strange custom of cleaning the teeth with their own urine." Laurent Joubert, royal physician to Henry III., preferred to this wine diluted with water, and most will agree with him.

The cures for toothache were endless. Brantome tells us that the Queen of Spain had sent him, when he had the toothache, "a very singular herb—when he took it and held it in the hollow of his hand, the pain suddenly ceased"; the same phenomenon has been known to appear in modern times on approaching a dentist's office or on the exhibition of forceps by the dentist. The marvellous herb was the dictamnus. Another used cotton soaked in oil, others pepper, cloves, sage, spikenard, poppy, mandrake, hyoscyamus; some applied to the temple a plaster of gum elemi (a stimulant gum obtained from various kinds of trees) with a little powder of cantharides. "It's a marvellous thing, the effect of this remedy," says the enthusiastic writer. Some advised bleeding; the celebrated Guy Patin, writing June, 1661, says: "I had a severe toothache yesterday, which compelled me to have myself bled on that side; the pain instantly ceased as by a kind of enchantment. I slept all night; this morning the pain returned a little; I had myself bled on the other arm, and was immediately cured"—which looks like neuralgia.

Tobacco or snuff was also "a marvellous" remedy to relieve toothache.

As to caries, in addition to the excrements, fluid and solid, of the wild cat ("approved by two of the Regents of the Faculty of Medicine" in Paris), there was used a vegetable essence whose composition is, alas! concealed from us.

A certain Sieur Rebel in 1540 brought from Egypt "a water which destroyed toothache on the spot; it takes one by the nose and makes one weep abundant tears," but a phial of four doses cost a louis d'or. As a louis d'or was worth intrinsically about \$4.60, equivalent to some \$70 at the present time, it will be seen that the remedy was rather dear—but who with the toothache and the money would hesitate?

In the country, we are told, a very favorite remedy was to rub the tooth with the tooth of a dead man.

Local anaesthesia is not a new discovery. Writing in 1610, de Courval tells us how a certain charlatan tooth drawer proceeded—he used no instrument but his two fingers, the thumb and the index finger—"before drawing the tooth which the patient wished removed he touched it with his two fingers, on the point of one of which he, talking all the time, placed a little narcotic or stupifying powder, so as to put the part to sleep and make it insensible and without feeling. And on the other finger he put a powder marvellously caustic, which had so rapid an operation that in the very moment he made a cut or opening in the gum, it displaced and uprooted the tooth so that as soon as he touched it with his two fingers he only extracted it, and sometimes it fell out without being touched." What these powders were we are not told, but the author assures us that it was impossible for any pain to appear "by reason of the said narcotic powder which was placed there at the same time as the caustic, the one on one side of the gum and the other on the other."—*Credat Judaeus Apella*.

However, the author informs us: "It is an assured fact, as I have heard said by persons of standing and trustworthy, that most of those whose teeth were drawn by this charlatan afterwards fell into great fluxions and catarrhs by reason of the attractions which had been excited in these parts by the said violent powders, and with some all the teeth fell out, so that, having determined to have only one or two drawn, they were thunderstruck to find that they lost nearly all—a thing miserable and deplorable!"

Now that man was a quack; but the regulars were not without their anaesthetic. Here is the formula:

Take two ounces of red roses, boil them for a day and a night in strong vinegar; then dry them. Take enough and put on the tooth, and it will fall out.

Here is another:

Boil and then reduce to a cinder, earthworms; fill the hollow tooth with that powder and close it with wax. It will fall out.

I have spoken of regulars, for there were regular dentists. The profession of surgeons, indeed, were advised not to draw teeth, especially those who used the lancet frequently. The celebrated Peter Dionis,

Surgeon-in-Ordinary to Maria Teresa, Queen of France, in his work on Surgery says of tooth pulling: "That operation consists only in the effort the wrist must make to pull the tooth; the effect is redoubled when the tooth resists and the operator does not lose hold till the tooth is extracted. That is why the surgeons who have much bleeding practice, and who wish to keep the hand light and firm, should never draw teeth, for fear that the exertions they must make should render the hand trembling; that work is to be left to operators who perform it daily and who have no other way of making a living"—which may be considered a blow beneath the belt for the primitive exodontist.

The learned author gives another reason: "If I advise the surgeon to abandon that operation, it is not solely by reason of the injurious effect on the hand, but also that it seems to me to partake a little of the charlatan and mountebank. In fact, most of these extractors abuse their ability in order to deceive the public, making believe that they need only their fingers or the point of a sword to extract the most firmly rooted teeth. But a surgeon should never recognize these tricks of dexterity; and, as probity should be the rule in every action, he should keep himself aloof from those who wish to impose on others."

This indicates what the fact was, that very many extractors were quacks rather than surgeons; they became, indeed, so notorious for lying that there was a proverb: "Lies like a tooth-drawer."

The Pont-Neuf seems to have been one of their favorite stations; but they were seen at every fair. One of the most celebrated tooth-drawers was Jean Thomas, generally called Grand-Thomas; he had, indeed, studied surgery and been admitted master, and he practised with the license of the Faculty. He was tall and stout, had the voice of a Stentor, wore a red coat trimmed with gold, and a "bicorné" or two-cornered hat adorned with peacock feathers. He had an enormous sword at his belt, and was recognized from afar by his gigantic height and voluminous clothes; he stood on a steel car with four wheels, and roared so loud that both sides of the Seine resounded. He had medicine for several diseases, but shone chiefly as an extractor of teeth. His star reached its zenith of glory in 1729, when the Queen of Louis Quinze, Marie Leszezynska, daughter of the exiled King of Poland, gave birth to a Dauphin. He announced amid the general rejoicing that for fifteen days he would draw the teeth of every one presenting himself, and that on Monday, September 19, he would give a grand open-air banquet on the Pont-Neuf. The police cruelly stopped the banquet.

Although Dionis advised surgeons not to draw teeth, he did it himself sometimes, and this is how he set about it: "You make the patient whose tooth is to be extracted sit upon the ground on a cushion

(carreau); the operator places himself behind him and, having caught his head between the two thighs, he raises it a little. The mouth of the patient being open, he takes note of the defective tooth, so as not to take hold of one instead of the other; then, after laying it bare, he separates the gum from that tooth, which he then seizes with the instrument which seems to him most suitable. . . . When there is no failure, the patient spits out the tooth with the blood from the gum."

Dentistry made great strides in the 18th century; the kings, queens, princes and princesses, with many of the nobility, had their own dentists, generally men of talent and education, who were determined rather to save teeth than extract them. There were women dentists; but in 1755 women were forbidden the profession, although Paris had only about thirty dentists in all. In 1768 regulations were made for admission as an expert in the care of teeth.

But before this there was much progress from the earlier practice. Filling with lead (plombage) and artificial teeth were not uncommon; it is said that Henry IV., Henry of Navarre, paid 20 sous a month for dentists' care of his teeth, and there is an account still extant for "gold to fill (plomber) the King's teeth." But gold was not often used; Ambrose Pare recommends cork and lead, and the use of lead was so common as to give rise to the word "plombage" for filling generally. Prosthesis, too, had reappeared in the 16th century.

Pare advises "when they fall out, others should be fitted in, of bone or ivory or shark's teeth, which are excellent for that purpose and which are to be tied to other neighboring teeth with gold or silver thread."

Nor were full sets of artificial teeth unknown; they were not very useful, indeed, being rather for show than for mastication. One court lady, we are told, had a set of teeth of the seawolf (loup marin, *Labrax lupus*)—"She removed them when eating, but she replaced them to speak more easily, and that cleverly enough. At the table when others were talking she removed her set of teeth and hurried to eat; then she replaced her set to unload her budget." A satirical writer informs us in 1605 that "many . . . had artificial teeth, which they removed before seating themselves at the table." It would appear that the manufacture of false teeth was in the hands of the turners (tabletiers). Some of the practitioners claimed more success in their work. We are told of Catalan, of the Rue Dauphine, who "Will make you a complete set with which you will masticate all foods without discomfort and without effort." This was late in the 18th century. At that time it is said that ivory, human teeth, teeth of cattle and walrus, were almost exclusively employed; and one practitioner advertised (in 1786) that he had discovered springs made of gold to hold as firmly as possible the artificial sets of teeth for mastication and talking. "These sets of

teeth are shaped to imitate nature and to make all the movements of the mouth without being liable to break; they serve, specially in the absence of natural teeth, for trituration of the food—that, as is well known, is the foundation of the whole animal economy.” Even those in high station did not always have sets of teeth. Madame de Maintenon in 1714 writes: “I can scarcely see, I hear still worse, and I am no longer understood, because pronunciation is gone with the teeth.”

The transplantation of teeth, the immediate replacement of a carious tooth by a sound human tooth, although doubted by Ambrose Pare, is said to have been successfully practised thirty years later, in 1615, by Dr. Louis Guyon; this, however, was again a century later doubted by Dionis.

Let us now leave this field and see what were the official medicines. For that end we are not driven to conjecture, gossip, or tradition.

Moses Charas, in 1673, published at Paris his *Pharmacopoeia*, in 1753, of which Louis-Guillaume Lemonnier, afterwards one of the royal physicians of Louis Quatorze, Louis Quinze and Louis Seize, published at Lyons an improved edition in Latin and French, which was translated into all the languages of Europe, and even into Chinese. This is a perfect mine of lore pharmaceutical, and undoubtedly reliable.

I gather from this Pharmacopée Royale some flowers of dental significance.

For toothache, Agaric Troches are recommended: take two drachms of white ginger contused, four ounces of white wine, half a pound of choice agaric in powder—make troches according to the rules of the art. This was a wondrous medicine, good for stomach, kidneys, liver, spleen and uterus; it cured headache, pains in the eyes, ears and teeth, besides killing worms.

Cynoglossus Pills were very efficacious: take six drachms of choice myrrh, five drachms of the root of olibanum, half an ounce of each of dry cynoglossus root, seed of white hyoscyamus, and extract of opium, and an ounce and a half of each of saffron, castoreum and gum styrax. These are much esteemed for fluxions from eyes, teeth, etc., and to facilitate slumber by allaying pains.

But the real thing for toothache is the Oil of St. John's wort, *Oleum hyperici*. Take two pounds of the top flowering leaves of St. John's wort approaching maturity, bruised, four pounds of olive oil, half a pound of generous wine, two pounds of Venice turpentine, three ounces of tincture of saffron. This makes a balsam for pains in the joints, sciatica, gout and even for the toothache. That it heals all kinds of wounds (even those of the nerves), burns, etc., of course follows; but then “it is good also for worms and convulsions” when applied externally.

Then there were the *Pilulae sine Quibus*, Pills without which one should never be found. Take fourteen ounces of the extract of Socotrine aloes, prepared with the juice of white roses, six drachms of dacridium, half an ounce of each of the whitest agaric, choice rhubarb and cleaned senna leaves, a drachm of each of red roses without the stem, the tops of absinth, seed of violets, dodder and mastic. Make pills. These pills are splendid purgatives, and "are strongly recommended in diseases of the head, and particularly in those of the ears and eyes—they are taken fasting after the first sleep or in the morning."

Dentifrices were not unknown. Apparently there was not the variety we now enjoy; in fact, I find only three, being *Pulvis Dentifricus*, Nos. 1, 2 and 3 respectively.

For *Pulvis Dentifricus*, No. 1, take one ounce of each of root of Florence iris (i.e., orris root), pumice stone and stag's horn calcined, prepared red coral, sepia bones, and cream of tartar, all very finely pulverized; half a scruple of each of oriental musk and civet, and two drops of each of distilled oils of rosewood, cloves and cinnamon; this may be mixed in a marble mortar with equal parts of syrup of mulberries and kermes to make a paste.

The author says: "I know that there is no want of powders or pastes for cleansing and whitening the teeth, but I can assure you that this recipe is very good whether it be used in powder or in paste, for, in addition to cleaning and whitening the teeth, it also prevents decay and stabilizes them."

Pulvis Dentifricus No. 2 is simple: Take two ounces each of tears of dragon's blood and burnt common alum, finely pulverized; and four grains of oriental musk; this may also be made into a paste with the same syrup. "The use of this composition, whether in powder or in paste, is to rub the teeth gently evening and morning, or even every hour if desired."

For *Pulvis Dentifricus*, No. 3, take half an ounce of each of calcined pumice stone, white coral, sepia bone and cream of tartar all prepared on a porphyry slab, and orris root finely pulverized; one drachm of sal ammoniac similarly pulverized, three grains of each of oriental musk, and ambergris—"this powder is also very good for cleaning and whitening the teeth. It is used either in the state of powder, or better mixed with syrup of coral or dry roses or rose-honey, and then it is made into a paste before scrubbing the teeth." This rose honey, *Mel rosatum*, made of dried red rose leaves and very white honey, was used by itself to clean and whiten the teeth. We may close our account of this work by extracting the formula for a balsam to promote the growth of the teeth in children; it is called the *Balsamum ad puerorum dentitionem*, but there is no restriction of its use to *pueri*, boys; and no doubt it was equally beneficial to the dentition *puellarum*, of girls.

Take three ounces of unsalted May butter, two drachms of each of hen and duck fat; two ounces of each of the juice of river crabs, contused, extracted by cornflower water, also of mucilage of marsh mallow; four ounces of pulverized sugar candy; the yolk of an egg, and six grains of musk and of ambergris; mix and make a balsam. You crush two or three live river crabs in a marble mortar with a wooden pestle, moisten them with a little cornflower water, and then press out two ounces of fluid; prepare two ounces of the mucilage of marsh mallow root, put the whole into a vessel of glazed earth with three ounces of May butter, two drachms of chicken fat and as much duck fat, cover the vessel and heat at a slow fire till the fluid almost disappears; then strain through linen, add (without fire) the yolk of an egg with the sugar candy, the musk and the ambergris finely powdered and the balsam is made.

It is a tried and approved preparation "for softening the gums of small children when their teeth are ready to come out; but the nurse should take care to anoint them with it often. Its use is very handy, for, not being disagreeable to the children, it cannot hurt them if they swallow it."

Leave we the Old World and come to the New.

Nicholas Monardes, a Spanish physician, was born at Seville in 1493, the year after Columbus discovered America, or at least islands off America; Monardes did not visit America, but he investigated the medicinal properties of American plants and other materials introduced from the New World. He published a book at Seville, in Spanish, 1565, with the title *Dos Libros de las cosas que se traen de las Indias Occidentales que Severn al uso de Medecina*.—Two volumes concerning things brought from the West Indies which are used in Medicine. This work (after being reprinted in 1569 and 1580, a third volume being added in the last edition) was translated into Latin by Charles Clusius or L'Ecluse, and published in one volume at Antwerp, in 1574; this is the edition which I use.

I give the plants only which were used for the teeth; most of them had great efficacy also in the case of disease of the other parts.

The marvellous Tacamahaca from New Spain, in addition to its other virtues, "allays tooth-ache when applied to the teeth even if they are decayed: and if the decayed tooth be burned (cauterized) it will prevent further decay."

The Carana, brought from the interior of the Continent by way of Cartagena and Nomen Dei, cures everything that the Tacamahaca can cure, and more quickly.

Then there was tobacco, which a few years before that time, indeed, had been brought to Spain, "rather for the ornamentation of gardens

than because of its qualities; but now it is very much more noted for its qualities than its beauty." It would be impossible to enumerate all its medicinal virtues; but the enthusiastic author can say: "Not only does it terminate pain of the teeth arising from a frigid cause, the tooth having first been rubbed with a piece of cloth soaked in its juice and a little pill made from its leaf having been inserted in it; but it also checks decay so that it creeps no further."

The fruit and other parts of a tree not named, but described as being of the size of the Ilex or Scarlet Oak, with bark like that of the Cerrus Aeglyops or Turkey Oak and leaves like the Ash, are much praised. "The teeth are stabilized by the powder rubbed on them, and receding gums are healed."

"Three years ago there was brought from Mechoacan Province a certain root called Carlo Sancto, whose distinguished qualities they preach."

"This same plant when chewed helps receding gums and stabilizes the teeth; it also frees them from roughness and decay, and improves the breath; but after use the mouth is to be washed out with wine, to take away the bitter taste."

"A few days ago the Bishop of Cartagena brought from the mainland of the New World the fruit of a tree from which dropped that tear which they call Dragon's Blood."

Amongst other qualities "it reunites recent wounds, it frees the gums from putrefaction and stabilizes the teeth."

We can appreciate the great esteem in which the inhabitants of the Province of Quito held the teeth when we learn that "the inhabitants of this region are called Guancauilcas and are toothless, for they have a custom to draw their teeth, which they offer up to their idols, saying that the best should be offered to them, and nothing is more distinguished for a man, nothing more necessary, than the teeth."

Petrus de Osma et Xarayzeio, writing to Monardes from Lima, December 26, 1568, expresses the fear that the Indians had sacrificed to their idols a boy of their race because he had disclosed to the Spaniards where to find Bezoar stones, for "the Indians hold these stones as very valuable, and offer them at the shrines of their idols, which they call Guacas, and they are accustomed to offer up other very valuable things, such as gold, silver, gems, necklaces, animals and boys."

Perhaps the modern dentist has now heard enough of these old-time teeth; but I cannot refrain from adding something of the wonderful qualities of Guayacan—our Guaiacum.

Its use in the treatment of the Morbus Gallicus is well known, but its other virtues seem to have been obscured by time; anyway, Monardes

tells us that "it stabilizes the teeth and whitens them if they are quite frequently washed with it," i.e., with the infusion or tincture.

And now I must and will stop.

SUPPLEMENTARY NOTE.

It may be interesting to give Celsus' observations on the Teeth—they are to be found in Book VII., cap. XII., sec. 1 of his *De Re Medica*: In cap. XI. he speaks of certain diseases of the mouth and in cap. XII. he proceeds:

"In the mouth there are also some diseases to be cured manually—in the first place sometimes teeth are loose, whether on account of the weakness of the roots or of the defect by the gums drying up. In either case a hot iron should be applied to the gums touching them lightly, not keeping it on. The cauterized gums should be anointed with honey and washed with mead. When the ulcers begin to be clean, drying medicaments are to be applied of the repressive kind.

"If, however, toothache appears and it is determined to remove the tooth because medicaments are of no avail, it should be shaved around so that the gum separates from it—then it is to be shaken. This is to be continued until it is easily moved, for to extract an adherent tooth is attended with great danger and sometimes the jaw is displaced. It is even more dangerous in the upper jaw because it may concuss the temples and eyes. There the tooth is to be taken hold of by the hand if possible, if not, by the forceps (forfice) and if it is corroded, the cavity is previously to be filled with lint or well fitted lead so that it will not break under the forceps. The forceps must be drawn straight up lest the root being inclined the fragile bone in which the tooth is fixed be broken, one side or the other; consequently danger is never absent in the operation, at all events in the case of short teeth which have roots almost longer. For often where the forceps cannot seize the tooth or does seize it without effect, it seizes and breaks the bone of the gum. Where there is an excess of haemorrhage, one may know that something has been broken off the bone. Accordingly the shell should be examined with the probe (speculum) and drawn with the forceps (vulsella). If this is unsuccessful the gum should be incised until the loose shell of the bone is seized.

"If this is not done at once, the jaw hardens externally, so that it is not possible to open the mouth. A hot cataplasm of flour and fig should be applied until pus is excited, then the gum should be incised.

"It is to be noted that pus flows profusely from a broken bone—so that even then it is proper to extract—sometimes indeed, from an injury of this kind a fistula makes its appearance which must be got rid of.

"A scabrous tooth of which part is black is to be scraped and anointed with roseleaves powdered to which a fourth part of gall-nut and another of myrrh are added. Sour wine is to be held in the mouth frequently, the head is to be covered, much walking, exercise and friction of the head had, while acrid food is not to be used.

"If any teeth are loose from a blow or other accident, they are to be tied to others which hold fast, repressives are to be held in the

mouth, such as wine in which pomegranate rind has been boiled or into which hot gall-nuts have been thrown.

"If, again, in children one tooth grows out before that which should fall first, has disappeared, it should be drawn clean out; while the one which is produced in place of the former, should be pressed daily with the finger till it arrives at the proper size.

"Whenever the root is left after the tooth is drawn, it should be extracted with that kind of forceps, the Greeks call *rhizagra*" (that is, the "Punch" formerly used for extracting roots of teeth).

About the last place one would expect to find any tooth remedies is a treatise on Vipers. But in the very celebrated work of Marcus Aurelius Severinus, *Vipera Pythia . . . De Natura Veneno Medecina Demonstrationes et Experimenta Nova* published at Padua, 1651, I read: "Conrad Tigurinus in his work on Serpents adds that the application of a viper's tooth elides toothache: also Pliny in Lib. 30, Cap. 5, alleges dentition to be promoted by vipers' teeth being attached to the infant. So Ponsettus believes pain in the teeth of adults to be relieved by tying the upper teeth of the enhydrus to the upper teeth of the patient, the lower to the lower. Moreover to scarify the aching teeth of men, around with the largest tooth of the male white enhydrus will effect a cure," p. 359.

The word "enhydrus" is properly "enhydriis", literally transliterated from the Greek. Herodotus uses "enhydriis" of the otter; lib. ii., 72; iv., 109; but others use the word of the watersnake. Pliny is the only classical Latin writer who has the word at all—he employs it for the watersnake.

In his *Naturalis Historia*, lib. xxx., c. 3, 8, he says: "Moreover, for pains of the teeth some say the ashes of the heads without the flesh of dogs that have died of rabies is a sovereign remedy, dropped with cyprus-oil into the ear on the side of the aching teeth. The largest, left tooth of a dog, the aching tooth being circumscribed; or the bone from the back of a dragon (*draco*) or of an enhydriis—this is a male white serpent—they circumscribify with the largest tooth of this—they rinse the canine teeth with wine reduced to half its volume by boiling. The teeth are scarified with the bones of the lizard (*lacerta*) taken from its forehead in the full of the moon so that they do not touch the ground . . . the ash of dogs applied with honey assists the slow dentition of children; a dentifrice is made in the same way. For hollow teeth the ash of mouse dung is inserted or the dried liver of lizards. If the heart of a snake is eaten or even applied it is considered effective. There are some who direct to eat a mouse twice a month and so avoid aches. Earthworms boiled in oil and dropped into the ear on the side the toothache is give relief—the ash of the same applied to corroded teeth makes them fall out easily; applied as an unguent it helps aching sound teeth—it should be burned in an earthenware vessel (*testa*). It is advantageous too to wash the teeth with a decoction of mulberry root in squill-vinegar. Then that little worm which is found in the plant called Venus' Lip inserted in the cavities of teeth is very helpful . . . and bugs from the mallow are dropped into the ears with oil of roses. The fine sand which is found in snail-shells inserted in the cavities of teeth, stops the pain immediately. The ash of empty snail-shells with myrrh helps the gums—the ash of a serpent burnt

with salt in a jar along with oil of rose (is) dropped into the ear on the opposite side. The cast off skin of a snake heated with oil and pine-tar is dropped into either ear; some add frankincense and rose-oil. This same preparation inserted in the cavities makes the teeth come out without difficulty. I myself think it idle to speak of white snakes sloughing this membrane at the time of the rising of the Dog Star, as that does not happen in Italy and it is much less credible that in warm regions this sloughing is delayed so late, and indeed the cast-off skin aged with wax they say draws the teeth quickly. And the tooth of snakes bound on mitigates the pain. There are some who believe that the spider caught with the left hand and ground with rose oil dropped into the ear on the same side is valuable" (The words I translate "spider" are "araneum animal ipsum"; they may mean "the shrewmouse"). . . .

"They say that the taste in the mouth is improved if the teeth are rubbed with mouse-ash mixed with honey: some mix the roots of fennel. If the teeth are scraped with a vulture feather, the breath is made sour—while to do the same with a porcupine quill tends to firmness. . . ."

Pliny in another passage, *Nat. Hist.*, lib. xxxii., c. 7, 26, says:

"Toothache is relieved by the gums being scarified with the bones of the sea-dragon; the decoction of the brain of a puppy (*canicula*) in oil, and applied so that the teeth are washed with it once a year. Moreover, to scarify the gums with the root of parsnip is very useful in toothache. That is triturated and anointed with white hellebore and it extracts the teeth without trouble. The ash of salt fish burned in an earthen vessel added to powdered marble is among the remedies: and old tunny fish burned in a new vessel, then triturated is excellent for toothache. They say that the backbones of all kinds of salt fish burned, triturated and unguented, are equally beneficial—and frogs are to be boiled one in a half pint (*hemina*) of vinegar, the teeth washed with the fluid and the fluid kept in the mouth. If squeamishness is an obstacle, Sallustius Dionysius used to hang them up by the hind legs so that the virus would flow out of their mouths into hot vinegar—that he would do with many frogs—he gave frogs to those of stronger stomachs to eat with the broth. They believe that the maxillary teeth (the molars) are particularly healed in this way and loose ones to be made firm by the said vinegar. For that purpose some macerate the bodies of two frogs, the legs being cut off, in half-a-pint of wine dried. the loose teeth to be washed with it. Others attach all of them to the maxillary—others again make a decoction of ten in three quarts of vinegar boiled down to a third, to stabilize the loose teeth. Then, too, the hearts of thirty-six frogs are decocted in a quart of oil under a potlid (*i.e.*, in a covered pot) that this may be poured into the ear, for an aching jaw. Others apply to the teeth the liver of a frog decocted and triturated with honey. All the above is more efficacious if marine frogs are used. If they are carious and fetid they throw a hundred of them into an oven to be dried during the night; then a sufficient quantity of salt is added and this is used for rubbing. The *enhydria* is a snake living in water and so called by the Greeks. They scarify the gums with four upper teeth of this snake in pains of the upper teeth, with the lower in pains of the lower—some are content with the canine tooth of them. They use too, the ash of crabs; and the ash of mice is a dentifrice."

Sextus Plato, *De Cane*, ix., 24, says:—"For tooth ache burn the tooth of a dog, decoct the ash in half a pint of wine, and gargle with it—a cure will be effected". In the same work, ix., 26, he says:—"That the teeth may grow without pain, burn the tooth of a dog, triturate with honey and rub the gums firmly".

Habderrahmanus Aegyptius is said to have directed:—"What is called the canine tooth of a dog appended to the neck of a child whose teeth have not yet appeared, makes their eruption easy without any pain or injury". Delphin Ed. Pliny, *Nat. Hist.*, vol. vii., p. 4,080 note(d).

Quintus Serenus, c. 15, p. 314, says: "If by any chance you complain of corroded teeth burn mouse dung and put it into the gaping openings—the powder of earthworms roasted is also helpful". Marcellus Empiricus, Plinius Valerianus, Galen and others agree in this.

Marcus Aurelius Severinus was born in Calabria in 1580 and died at Naples in 1656—he was first a lawyer, then a medical man; he was fond of trepanning and the actual cautery and was one of the first to describe diphtheria. His fame was so great as a professor of medicine as to attract a large number of students to Naples—he was a daring and harsh operator.

"Finally and in conclusion," the celebrated Franciscan Friar, mathematician and botanist of note, Louis Feuillée, in his sumptuous quarto published in Paris, 1725, *Journal des Observations Physiques, Mathematiques et Botaniques*, of what he saw in Chili and Peru, tells us of two plants used by the Natives dentally.

Chala Origani folio. "The natives of this country (Chili) use this plant in severe toothache, washing the mouth with a decoction."

Geranium Columbinum perenne flore purpureo, Vulgo *Core-Core*.

"This plant is admirable for relieving pains of the teeth: the Indians have the root boiled in ordinary water and when they have toothache, they rinse the mouth with it and feel themselves relieved at once; it also has the property of hardening the gums: that is the reason that those of advanced age make great use of it."

I almost forgot our own Samuel Thomson, the founder of the last formal system of Medicine, the Thomsonian or Botanical School, which had great vogue in the second quarter of the last century and is not quite dead yet, though I believe it no longer has a College. Thomson with all his fondness for Lobelia and Capsicum had his own share of good sound "horse sense" and if he did not cure many he saved many from being killed *secundum artem* by the Regulars.

For toothache, Thomson, or at least his followers, (for the copy of his little book in my possession printed at Hamilton, Canada West, in 1833, is silent on the matter) advised to "chew the Xanthoxylum or Tooth bark; a piece the size of the finger nail is sufficient at a time. Repeat till the pain ceases—as effectual as anything of the stimulating kind or No. 6 put in the tooth". Thomson's No. 6 was about the same as Tr. Myrrh. Co., and contained Myrrh, Capsicum and Alcohol, sometimes Camphor and Turpentine. Thomson gives an excellent and cheap dentifrice: "Bayberry or Candleberry . . . is good as tooth powder, cleanses the teeth and gums and removes the scurvy, taken as snuff it clears the head and relieves the head-ache. It may be given to advantage in a relax and all disorders of the bowels. When the stomach is very foul, it will frequently operate as an emetic. For a dose take a teaspoonful (*i.e.*, of the roots dried and powdered) in hot water sweetened". Bayberry is *Myrica cerifera*.

THROUGHOUT CANADA

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ALBERTA.



HE officers of the Alberta Dental Association for the ensuing year, elected at the annual meeting of the Association, held in Calgary, are as follows: Dr. A. B. Mason, Edmonton, *President*; Dr. M. L. Moore, Medicine Hat, *Vice-President*; Dr. Leslie McIntyre, Tegler Bldg., Edmonton, *Secretary-Treasurer*, *Registrar*.



The Board of Directors of the Association has arranged with Dr. W. D. N. Moore of Chicago, to give a series of two-day clinics on cast gold work in Dentistry at the times and places as follows: Medicine Hat, August 24th and 25th; Lethbridge, August 27th and 28th; Calgary, September 1st, 2nd, 3rd and 4th; Edmonton, September 8th, 9th, 10th and 11th.

Doctor Moore ranks high as a clinician, and it is expected that most of the men from outside points will feel they cannot afford to miss this valuable opportunity to obtain additional information on a subject of so much importance.



Edmonton Dental Society Picnic, 1925.

(Photograph taken by Dr. H. E. Bulyea.)

The Edmonton Dental Society, on June 26th, held its annual picnic on the Municipal Golf Links, as a wind-up of the year's activities. There was an attendance of eighty-two, and a variety of sports were indulged in, all the way from children's races and golf to a fat man's race. The only things missing from the programme were climbing the greasy pole and catching the greasy pig. All reported a very enjoyable afternoon and evening. This is a form of dental society activity which might profitably be copied by other cities.

* * *

Dr. J. G. Roberts, of Edmonton, is to be congratulated on his convalescence following an operation for a very serious mastoid infection.

Dr. A. E. Hennigar, of Calgary, has been confined to the house for some weeks through illness, and his friends are glad to see him round again.

J. W. C.

Dominion Dental Council

RESULTS OF EXAMINATIONS, JUNE, 1925.

THE following candidates are reported by Dr. W. D. Cowan, Secretary-Treasurer of the Dominion Dental Council, as having passed in the subjects indicated:—

ANAESTHETICS.—Lois Adams, V. E. Barnes, C. T. Browne, J. M. Campbell, F. W. Doan, R. L. Falconer, E. J. Fisher, W. J. Gillies, D. E. Green, E. E. Groff, E. G. Hargreaves, R. E. Hennigar, A. E. Hughes, P. Hutzulak, L. A. Johnstone, H. J. Kennedy, T. H. Lewis, W. T. Lockwood, J. P. Markinski, S. Metzler, D. L. Macdonald, T. G. McCarthy, J. A. C. McDonald, M. H. Nicholson, S. J. D. Rowley, R. H. Stanford, M. R. Steen, G. V. Turnbull, W. G. Willigar.

PATHOLOGY (only).—G. Y. Barrett, W. R. Cooper, L. M. Grose, J. P. Markinski, O. R. Thompson, F. Wood.

BACTERIOLOGY (only).—F. H. Cowan, P. Hutzulak, H. J. Kennedy, T. G. McCarthy.

PATHOLOGY AND BACTERIOLOGY.—V. E. Barnes, J. M. Campbell, E. J. Fisher, W. J. Gillies, D. E. Green, E. E. Groff, A. E. Hughes, W. T. Lockwood, S. Metzler, J. A. C. McDonald, S. J. D. Rowley.

MATERIA MEDICA AND THERAPEUTICS.—V. E. Barnes, J. Carroll, R. L. Falconer, E. J. Fisher, W. J. Gillies, D. E. Green, E. E. Groff, G. B. Howard, P. Hutzulak, F. A. Kohli, W. T. Lockwood, S. Metzler, A. R. Montgomery, J. A. C. McDonald, I. G. G. Polack, A. Robinovitch, S. J. D. Rowley, S. Singer, F. Wood.

MATERIA MEDICA (only).—O. R. Thompson.

JURISPRUDENCE AND ETHICS.—C. T. Browne, J. M. Campbell, R. L. Falconer, E. J. Fisher, D. E. Green, E. E. Groff, E. G. Hargreaves, R. E. Hennigar, L. A. Johnstone, T. H. Lewis, W. T. Lockwood, A. R. Montgomery, J. A. MacDonald, J. A. C. McDonald, M. H. Nicholson, T. H. O'Connor, S. J. D. Rowley, R. H. Stanford, G. V. Turnbull, W. G. Willigar.

ANATOMY.—R. H. Barrett, L. M. Callbeck, H. A. Carman, L. D. Carmichael, O. J. Davies, J. C. Dempster, H. M. Eaton, J. A. Grant, N. H. Greenberg, G. C. Hare, L. D. Haselton, A. W. Irwin, G. C. Layter, J. A.

MacDonald, H. M. Robb, A. Robinovitch, S. J. Rowley, A. A. Stewart, O. R. Thompson, G. B. Thurston, J. E. Tilson, C. E. Toll.

PHYSIOLOGY AND HISTOLOGY.—G. Y. Barrett, F. B. Cooper, W. R. Cooper, H. M. Eaton, R. L. Falconer, J. G. Glascott, E. E. Groff, G. B. Howard, A. E. Hughes, P. Hutzulak, J. H. Lawley, W. T. Lockwood, A. Robinovitch, S. J. D. Rowley, G. B. Thurston.

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PROSTHETIC DENTISTRY AND ORTHODONTIA.—J. S. Bagnall, V. E. Barnes, G. Y. Barrett, C. T. Browne, J. M. Campbell, W. R. Cooper, F. W. Doan, R. L. Falconer, H. T. Fallaise, E. J. Fisher, W. J. Gillies, D. E. Green, S. Greenberg, E. E. Groff, L. M. Grose, E. G. Hargreaves, R. E. Hennigar, G. B. Howard, L. A. Johnstone, B. D. W. Lavers, T. H. Lewis, W. T. Lockwood, J. P. Markinski, S. Metzler, D. L. MacDonald, J. A. C. McDonald, M. H. Nicholson, T. H. O'Connor, S. J. D. Rowley, F. H. Shepherd, R. H. Stanford, M. R. Steen, G. V. Turnbull, W. G. Willigar.

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PHYSICS, CHEMISTRY AND METALLURGY.—J. M. Campbell (metallurgy only), J. Carroll, R. L. Falconer, E. J. Fisher (metallurgy only), J. G. Glascott, D. E. Greene, E. E. Groff, G. B. Howard, A. E. Hughes, P. Hutzulak, F. A. Kohli, S. J. Lesco, W. T. Lockwood, A. R. Montgomery, J. A. C. McDonald, T. H. O'Connor, I. G. G. Polack, A. Robinovitch, S. J. D. Rowley, A. Singer, R. H. Stanford, M. L. Stitt, G. B. Thurston.

The Gateway to Health

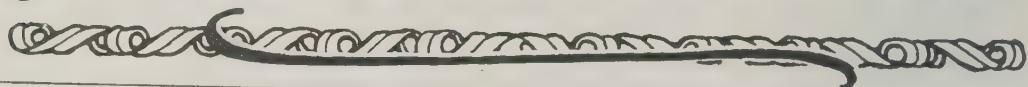


NEW monthly magazine, to be called "*The Gateway to Health*," will be published commencing the 15th of September, 1925. In announcing its publication, its sponsors state that it will be prepared entirely in the language of the man in the street and will mark the beginning of a new era—the era of correction and prevention—the era when the full import of oral hygiene and dental prophylaxis will be realized by the masses.

ORAL HEALTH welcomes "*The Gateway to Health*" and hopes that it may meet with the greatest possible success.

Here is a paradox. Skill, the thing that patients want, does not, by itself, command success.

Oral Health



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Vol. 15

TORONTO, SEPTEMBER, 1925

No. 9

EDITORIAL

Erroneous Press Report

IN the *Toronto Mail and Empire* of August 11th, 1925, a report was published under the heading "Dental Operation Fatal for Patient", in which it was made to appear that Dr. P. A. Beattie, Dental Surgeon, Toronto, removed some teeth for the patient in his office, death ensuing later in the hospital.

In publishing the account of the death, the following words were used: "The malady from which Fisher was suffering necessitated the removal of some teeth. He was being prepared for the operation with a mild anaesthetic by the dentist. During this process he struggled. His struggles brought on a rupture in the jaw, with the result that pus and some of the anaesthetic dropped into the larynx and choked him."

ORAL HEALTH is in receipt of a communication from Dr. Beattie, in which the facts of the case are stated as follows: "The late Mr. T. J. Fisher was admitted to Kew Beach Private Hospital on August

10th, 1925, for a *surgical* operation,—the removal of necrosed bone in the region of the upper left molars and bicuspid. I was to assist the medical surgeon by extracting the teeth in that area. The anaesthetic was administered by a *medical* practitioner, in the operating room of the Kew Beach Hospital. The patient died before the stage of surgical anaesthetic had been reached; hence no part of the operation, either surgical or dental, was carried out. I performed no dental operations whatever for the patient in my own office, nor in the hospital either. Kindly publish the true facts of this case in ORAL HEALTH, that it may help to clear up any wrong ideas members of the Profession may have had regarding the matter."

The following morning the *Mail and Empire* made a corrected report, expressing regret for the error which had been made.

The *Hamilton Spectator* a few days later published the following editorial, under the caption "Dentist Blameless":

"The *Spectator* printed a story yesterday, relying on an account in a Toronto morning newspaper, concerning the death of a patient about to undergo a dental operation. To-day the same newspaper carries a contradiction of its first report, which puts an entirely different complexion on the occurrence. It appears that the anaesthetic was administered, not by the dentist, but by a doctor at the hospital, preparatory to the extraction of the teeth. The dentist was, therefore, in no way responsible for the unfortunate outcome. As stated in yesterday's *Spectator*, the coroner exonerated all concerned from blame. The anaesthetist, it was found, had exercised proper care and skill in his treatment of the patient, and the dentist, of course, was not involved.

"The *Spectator* sincerely regrets that it was led to repeat a version of the affair which conveyed a wrong impression, placing the responsibility for the administration of the anaesthetic on the dentist, when, as a matter of fact, it was neither at his office nor by him that the anaesthetic had been given. Though it was clearly stated that no fault was chargeable to any one, we hasten to acquaint our readers with the facts of the case.

"Modern dentistry is a highly specialized science. Extraction work is being entrusted more and more to specialists, and when one considers the thousands of operations performed by dental surgeons in the course of the year, the extreme rarity of any untoward development from anaesthetics or the operations themselves can only be regarded as a marvelous record. There is, perhaps, no other department of surgical science in which the safety and comfort of the patient are more adequately provided for than in dentistry. It is a profession of which the practitioners have every reason to be proud, and the public every reason to feel confidence and gratitude."

Index of Periodical Dental Literature, 1876 to 1885



THE Dental Index Bureau has now published another volume of the Index covering the years 1876 to 1885. The volume has been compiled by Dr. Arthur D. Black, and is one more step towards the completion of the stupendous task undertaken by the Bureau of compiling a complete Index of all Dental magazines published in the English language.

The book is sold only upon subscription, payable in advance, the price being \$6.00 to points within the United States and Canada, and \$6.50 to all other countries. Subscriptions should be forwarded to the Secretary-Treasurer, Dr. Abram Hoffman, 381 Linwood Avenue, Buffalo, N.Y.

Correspondence

Toronto, Aug. 19th, 1925.

To the Editor of Oral Health:

On returning from my holidays I find in the July Number of Oral Health, a paper by Dr. John Oppie McCall, in which he makes the statement that at the first meeting of the American Academy of Periodontology a compromise was agreed upon between him and me regarding the term Periodontoclasia.

I am afraid Dr. McCall, through the lapse of time, has forgotten the facts. I certainly was not a party to any compromise, nor would I be a party to any compromise where a scientific term is concerned. The term is either right or wrong, and if the word which I had coined had been judged wrong I would not have agreed to its use. The term Alveolar Osteoclasia was used by me before I coined the term Dental Periclasia or its synonym Periodontoclasia, but I realized that it was not a generic term and did not present it to the Academy as such. It is, however, a comprehensive term and should be used instead of the term Alveoloclasia, because the alveolus of the jaw is the only bony alveolus in the body.

I submitted the term Periodontoclasia and the series of terms following it, to the Academy, and would not have made any claim of having coined them had not Dr. McCall asserted that Periodontoclasia was a compromise word. So far as the term "Periodontolysis," which he claims to have coined, is concerned, I am entirely unfamiliar with it. I do not remember having ever heard of it before. I may say that these terms were not coined for the Academy, because I had been using them before the first meeting of the Academy and I believe had presented them to Dr. Robin Adair for publication in his book called "Pyorrhea Alveolaris." That would be about 1914, which was also some time after I had used them for teaching purposes.

Sincerely,

ANDREW J. McDONAGH.

Head, Hand and Heart



THE gossip habit is a disease. If you have gossip germs on your person, please disinfect before entering here. This place stands for head, hand and heart—for happiness, health and helpfulness.—*The Motto Book*.

I HOLD every man a debtor to his profession, from the which, as men do of course seek to receive countenance and profit, so ought they of duty to endeavor themselves by way of amends to be a help and an ornament thereto.

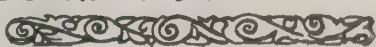
—*Bacon.*



DR. W. S. WATSON, VANCOUVER.
President British Columbia Dental Association.

ORAL HEALTH

*A JOURNAL THAT STANDS FOR THE OUNCE OF
PREVENTION AS WELL AS THE POUND OF CURE*



Vol. 15

TORONTO, OCTOBER, 1925

No. 10

Brushing the Teeth for Health*

BY PAUL R. STILLMAN, D.D.S., F.A.A.P., F.A.C.D., NEW
YORK CITY.

IF you were to ask any individual why he uses a toothbrush, he would most probably say that it was because he desired to have clean white teeth. He might say, if pressed further for an answer, that he desired to prevent pyorrhea, or decay. He might also say that he would like to keep his teeth from being sensitive. At any rate, the usual reply to be had from such a question would most probably carry the idea that the individual would like above all to have clean white teeth. There are few who have formulated a desire in regard to their teeth, which carries their mind to the real ultimate thing which they do desire, viz.,—health for their teeth.

If you will ask the next person you meet what he uses to clean his teeth, he will most probably name one of the commonly advertised dental pastes or some favorite toothwash or powder. I have tried this question on several hundred people, many of them dentists too, and they usually give the same answer. Their answer should be, that we use a toothbrush. Now, a toothbrush is to the mouth toilet what water is to a bath. One cannot bathe without water no matter how much soap he uses. And the toothbrush is an equally indispensable article in the toilet of the mouth. It is new information to many, if not a new truth, that one may obtain health of the mouth through the correct use of a toothbrush. Without the aid of the brush, about all that dentifrices are capable of doing is to change the odor or taste in the mouth for the moment. I do not wish it to be inferred that I am advising against the use of a proper dentifrice. The thought which I desire to bring out

* Broadcasted by station CFCA, Toronto, May, 1925. Illustrations kindly loaned by The Dental Cosmos, having been used in the publication of a paper by the author entitled "The Physical Culture of the Gingivae."



Fig. 1.

To be effective, the toothbrush should be comparatively small in size. The bristles should be long enough to bend when lateral pressure is applied. The handle just back of the bristle tufts is made smaller so that it will permit of use on the tongue surfaces of the teeth.

is the relative value of the brush and the dentifrice to the user. It is the brush itself which is by far the more indispensable of the two.

When we see clean white teeth our usual thought is that they indicate a condition of health in the mouth. While this is frequently true, it happens, only too often, that clean white teeth may be deeply affected by pyorrhea. Yet these teeth may have been kept clean by the use of the toothbrush. If this is the case you will naturally question my remark a minute ago, that the toothbrush can be used to bring health into the mouth. That is a question which I want to answer in this talk.

You are all doubtless familiar with the disease known as pyorrhea. It is a disease in which the teeth loosen and the gum and bone, which should hold them firmly, gradually waste away until the teeth fall out or have to be extracted. Erosion is another disease which is of interest to many of us. Erosion of the teeth is a wearing or dissolving away of the enamel on the lip and cheek surfaces, and although the cause has not been entirely agreed upon by dentists, it is largely attributed to mouth

acidity, together with a vigorous across-stroke use of the toothbrush. You will realize from what I have said, that the toothbrush, if incorrectly used, may cause injury to the teeth and may fail to protect the gums from disease.

I wonder if it has ever occurred to this radio audience that it is possible to use a toothbrush in a way which will do no harm, but which will stimulate those forces of the body which are responsible for the promotion and development of dental health. This is a new idea in oral hygiene. You are all familiar with the methods employed by

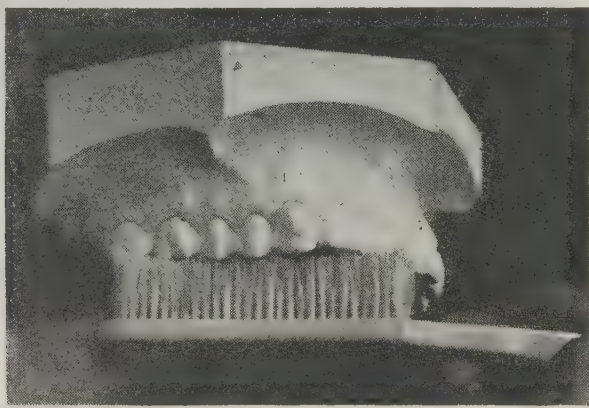


Fig. 2.

The absurdity of a large brush, one almost as large as the mouth itself, will be apparent. A broom is never as large as the room in which it is to be used, nor a tool as large as the article upon which it is to be applied. This brush was designed to be used upon the labial surfaces of the teeth, a procedure fraught with great danger to the gums and teeth when the across stroke method is employed.

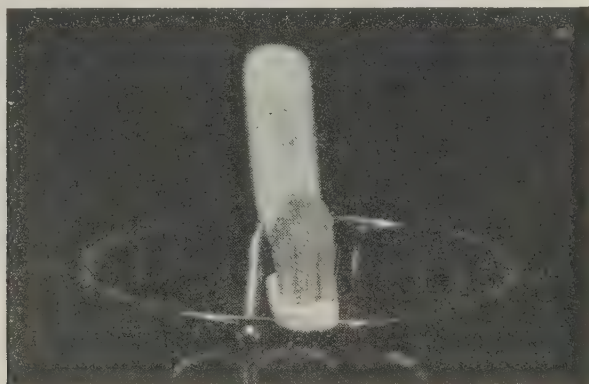


Fig. 3.

Notice that the bristle ends are not all the same length, and are trimmed so that the brush is not efficient for scrubbing. The bristle ends are "crowned",—a word sometimes applied to a roadway which is very high in the middle and slopes to the side.

physical training instructors and trainers of athletes to build up the strength and health of the body. I want you to realize what is probably a new thought to most of you, that these same methods and principles can be applied to the building up of the strength and health of the gums. When the knowledge of how this may be done has been stored away in your mind, it will then be possible for you to train your hand and develop gradually a condition of health through the use of a tooth

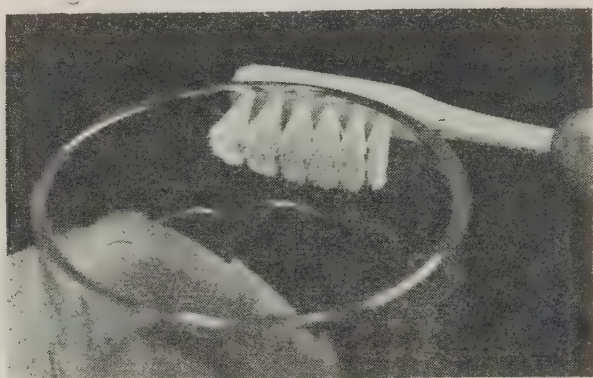


Fig. 4.

In use, the bristles are bent slightly by pressure on the handle. The bristle ends all reach the surface to which they are applied whether the surface is regular and convex as in the illustration or uneven as is the surface of the mouth and teeth.



Fig. 5.

When pressure is applied to structures having blood vessels, the vessels collapse and the part becomes "blanched" or whitened, due to the temporary absence of blood. Simply by bending the bristles upon the gum with very slight pressure, the whitened area in the photograph may be plainly seen over the bicuspid teeth. When blanching has been obtained, the pressure is released and the vessels refilled with fresh blood. This produces a blushing of the surface color, much the same as is obtained for the skin after a shower bath. The sensation of "glow" should always be apparent through the in-flow of fresh blood.

brush. There will be developed at the same time, a condition of tone in the teeth and jaws, that is almost unbelievable to you. Do not expect a miraculous or sudden change.

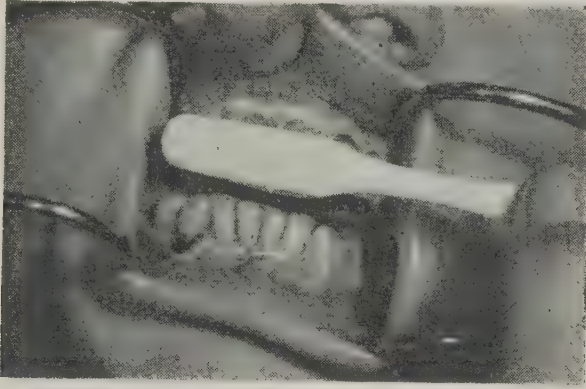


Fig. 6.

The brush is next moved to another surface and the same process kept up until every surface of all the teeth and their adjacent gums has been so treated. **THERE SHOULD BE NO FRICTION.** A slight movement of the handle aids in dislodging sordes which are usually to be found in the gingival crevice, but the bristle ends should not be made to slide upon the surface. Friction causes irritation, while pressure, which produces drainage and re-establishes the circulation, produces stimulation,—a result beneficial in restoring tone to the gingiva.

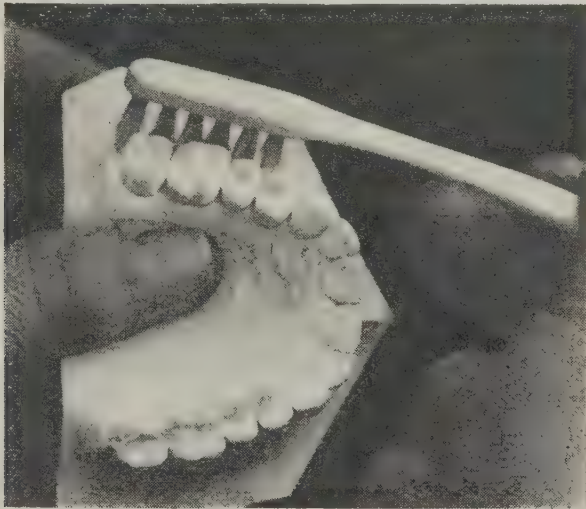


Fig. 7.

It is well to begin by applying the brush on the upper right side over the molar teeth. Systematic technique soon establishes a systematic habit, and as mankind does most of his acts through life by habit, a good habit is of inestimable value to those who desire to keep their teeth in health throughout their lifetime. The teeth may be preserved and will outlast life itself if tissue tone is maintained through the application of these simple hygienic principles. Blood-vessel drainage, which promotes cell nutrition, is the key to the preservation of the teeth. Dental disease cannot become established where the tissue tone of the teeth and gums is adequate to combat it.

To convert your mouth from an untidy, unhealthy condition to one of brilliant lustrous health will take more than a day or perhaps a week to accomplish. I promise you, however, that if you can comprehend that which I shall try very hard to describe here, and will put into practice what you may correctly learn from me this evening, the condition of health of your mouth will be enhanced and the necessity for frequent visits to your dentist will be materially lessened.

Let me first describe the principle involved in this idea, before I take up a description of the technique. We all know that our bodies are endowed by Nature with all of the attributes of health, and that these attributes of health may be made to develop and grow in degree until



Fig. 7-A.

Here is another aspect of the preceding pose. It shows the application of the bristle ends in their correct relation to the gingiva and the gingival crevices.

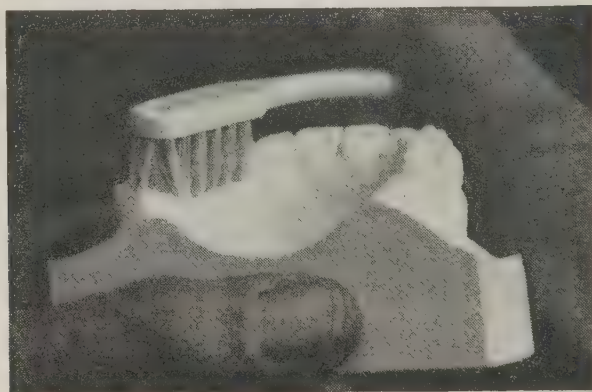


Fig. 8.

The ends of the bristles are presented to the surface of the gums at approximately an angle of 45 deg. On the lingual surfaces of the upper molars, the bristles should point perpendicularly upward toward the root ends, while on the buccal surface, they point toward the median line of the hard palate. This is necessary by the direction of the surface of the gums.



Fig. 9.

This illustration is the exact reverse aspect of the preceding one. It shows the bristles penetrating the interproximal spaces. It also shows more clearly the side pressure which causes bending and slight pressure on the blood-vessels. With this method of using the brush, correct technique will scavenge both the interproximal spaces and the entire gingival crevice on all of the teeth.

the body has attained a high degree of strength. This change is due to the operation of a natural law which has made physical culture successful.

A physical director depends much on fresh air, fresh well-cooked or raw food, bathing of the skin, rest in adequate amount, etc., but we also know that his real workshop is the gymnasium. The physical trainer depends upon exercise and rest as his strongest ally. Now, exercise is nothing more than the thing which physicians call function, or, in other words, it is the normal use of the normally nourished body when in action. And, it is the stimuli derived from exercise, which produce the rebuilding and regrowth impulses so necessary for strength. The toothbrush is capable of stimulating these rebuilding impulses in the mouth, when used in the particular manner which I am about to describe to you.

If everyone had regular even teeth, and used them vigorously, as do the primitive races, there would be no need of my speaking to you concerning the need for the stimulating effects produced by exercise. The average modern meal is of such soft and unchewable consistency, that it does not provide sufficient exercise for the jaws to promote their development. The main difficulty in this situation is the fact that drainage of blood from the vessels nearest to the teeth is inadequate and the nutrition of the structures hindered. And, it has been found that when

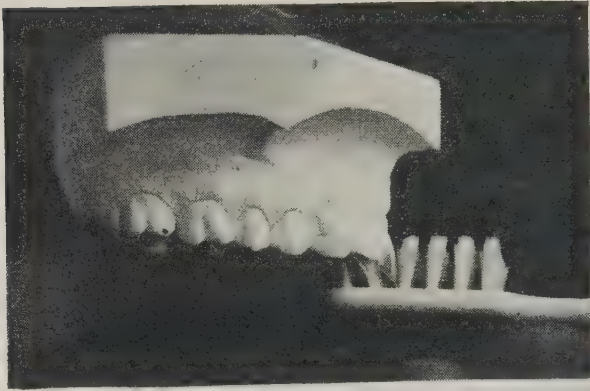


Fig. 10.

The twelve anterior teeth, both in the upper and lower jaw, may be most effectively brushed by applying the first two tufts of the bristles only. The bristles are bent slightly as are the bristles of a paint brush, but the movement is not the same sweeping one employed while painting a flat surface. It is more like that which is employed while filling a crack with paint. In other words, there is no effort to pass the bristle ends along the surface, but rather a slight "shimmy" with the bristle ends remaining more or less as placed. Pressure is directed from the side of the bristle and not the end, as pressure toward the end is liable to cause puncture.

drainage of the blood into the larger vessels and thus into the general circulation has been accomplished through the use of the toothbrush, there takes place a rapid development of tissue tone in the gums and in the bone which holds the teeth in their positions.

We are so accustomed to thinking that the important thing about the circulation is the matter of blood supply, that we do not realize that drainage of blood is even more important. If we empty the veins, fresh blood is bound to come into the part. But, if we do not empty the veins, we have congestion, and no new blood can enter.

Bleeding gums which occur in some mouths whenever the toothbrush is used, is known as congestion. Congestion in blood-vessels is not unlike congestion in street traffic—there is a slowing up of the progress of the stream. In order that the flow of blood may be facilitated, it is necessary to put upon these congested surfaces a slight and intermittent pressure with the toothbrush.

As to the toothbrush: I have found that the best results from the standpoint of both cleanliness and health are to be obtained with a brush having a short bristle section and with bristles of uniform length. This length should be sufficient to permit of a slight pliability or bending of the bristles when in use. This means that the bristles are a little longer than in the average brush. The bending of the bristles is the key to proper use of the brush. Where we have previously used the toothbrush on the principle of the scrubbing brush, we now use the

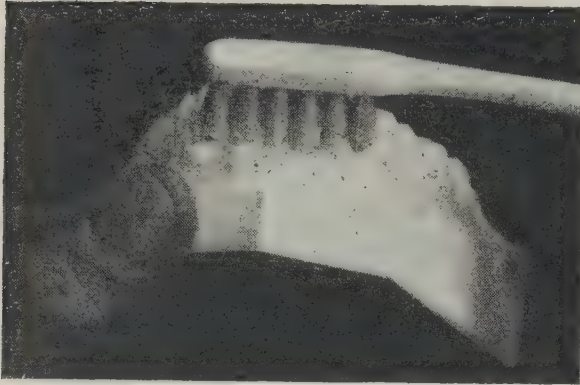


Fig. 11.

The labial surfaces of the lower anterior teeth are managed as shown in this photograph. After pressure and a slight "shiver" of the handle, the bristles are released for an instant to allow the blood to refill the vessels. This process is repeated over the entire gingiva until the gums assume a very light pink color.

principle of the paint brush, so far as is concerned with the bending of the bristles. It should be understood, however, that the toothbrush is not drawn over the surface of the gums and teeth in the manner of the paint brush, but is given a slight back and forth movement which produces pressure, but does not cause the points of the bristles to scrape or slide on the gums. In other words, while the toothbrush handle is given a back and forth movement, the bristle ends, because of the pliability of the bristles, remain in one spot as placed. This is a complete departure from the old idea of scrubbing, with its attendant scratching of the gums and consequent irritation.

The older idea of the use of the toothbrush was that its main purpose was to clean. It is true that cleanliness of the mouth is as essential to health as is cleanliness of the body. But health is only to be fully attained through exercise. It would be as absurd to expect health in the mouth through cleanliness alone, as it would be to expect to attain health of the body through bathing without exercise. What we desire of the toothbrush is that it shall bring about those changes in the blood-vessels of the gums which have heretofore been obtained only through chewing. Modern man does not chew his food vigorously enough—hence the necessity for a substitute.

When we chew our food, the pressure which is exerted on the teeth and their roots temporarily forces out the blood which was in the blood-vessels around their roots. This blood is carried off into the veins, and as the jaws are opened again, fresh blood enters the depleted vessels. With the alternate compression and relaxation, a very complete flushing out of the blood-vessels of the entire jaw structure is accomplished. In

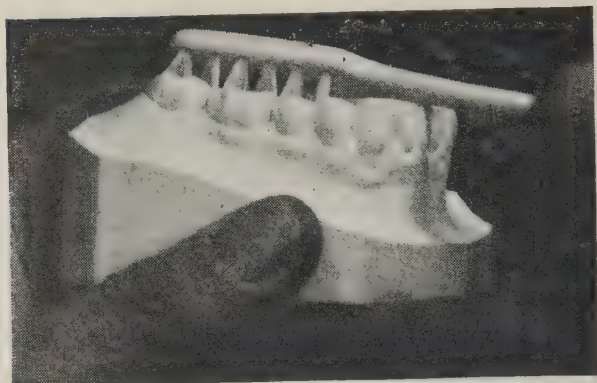


Fig. 12.

The lingual surfaces of the lower distal molars are frequently never visited by the bristle ends of the toothbrush. This illustration shows the ease with which a brush of proper design may reach these usually inaccessible surfaces.

a similar manner, the toothbrush when used as I shall describe, will produce a compression and relaxation of the blood-vessels, which will have the same beneficial effect on the tone of the parts. This effect is immediately perceptible and produces a plainly visible stimulation of the gum tissue.

It is interesting to consider how like, and yet unlike, stimulation and irritation are. One is beneficial, and the other is harmful; one produces tissue growth and health, the other produces tissue destruction and disease, and yet the same act may be made to produce either one. It is a striking paradox that the same instrument when improperly used will produce injury and when properly used will produce health. Recognizing this possibility, the effort was made, and successfully made, to design a toothbrush and perfect the method of its use which would promote health and tissue tone, rather than disease and wasting away of the gums.

The brush is first dipped in weak salt water. It is then used by placing the ends of the bristles at the junction of the gum and teeth, inclining them at an angle of about 45 degrees to the tooth surface, and pointing toward the roots. If you will recall the angle at which the paint brush is held, you will at once get the idea. Remember then, bristles placed where the gum meets the teeth, resting on both gum and tooth surface, pointed toward the root and inclined at an angle of 45 degrees. Next, press the toothbrush gently toward the teeth, so that the bristles are slightly bent sideways. This pressure produces a perceptible blanching or whitening of the gum which can be seen beyond the point on which the bristles are resting. Care should be taken not to use too much pressure, as this will soon destroy the brush and is entirely unneces-



Fig. 13.

This photograph illustrates the application of the brush to the molar and bicuspid regions of the lower teeth. In principle the brush is used in the same way on the lower teeth as for the upper,—the only difference is that on the lower the bristles point downward toward the root, while in the upper they are directed upward toward the root-ends of the upper teeth.

sary. Once the blanching has been accomplished, the brush is lifted off and the blood allowed to re-enter the vessels. This illustrates the essential action of the brush; and its use will produce these same changes all over the mouth. To describe again: Place the brush at the junction of the gum and teeth, resting partly on each, and press gently as before. Now, move the handle slightly back and forth, so that the bristles are bent as the handle moves. The points of the bristles remain where they were first placed. Remember, that while the handle moves a little, the bristle ends remain *as placed*. All this while the bristles assume a slight curve, due to the sideways pressure on the handle. The tendency of the bristles is to leave the gum and travel very slowly over the tooth to the cutting edge. This provides for the cleansing of the crevices between the teeth. In a similar manner, the paint brush is manipulated when the necessity arises for filling a crack with paint.

At the same time you will find that the entire enamel surface is cleaned. While your attention is directed toward the gums and the crevices between the teeth, the cleansing of the enamel surface is automatically accomplished. This is because the brush, when properly placed and properly manipulated, will traverse the tooth surface from gum-line to cutting edge. No other method of using the brush has been so effective, nor so safe, in accomplishing the cleansing of the neck of the tooth. And it is this location which is most vulnerable.

This brushing process is repeated at least four times in each part of the mouth. As this is done, it will be seen that the color of the gum

immediately takes on a more intense redness, due to the increased inflow of the blood. This is analogous to the redness of the skin which follows vigorous exercise. This process is repeated on one jaw, until the redness of the gum has been produced and then the other jaw is brushed until the same result is obtained. The entire process is repeated again on the jaw first brushed and then on the other. This is kept up for fifteen minutes. At the end of this time, the redness which was first produced will have given way to a bright pink. Gums which have a healthy circulation of blood are a bright lustrous pink in color.

Always keep in mind these points:

First: Bristles at an angle of 45 degrees; not at right angle as in the older scrubbing or sweeping method.

Second: Sideways pressure, causing the bristles to bend slightly.

Third: No friction, for friction causes irritation.

Fourth: All the surfaces of the teeth and their adjoining gums are to be brushed, both cheekside and tongueside.

Fifth: This process is to be repeated four times over the entire mouth.

The average individual brushes his teeth to make his mouth clean. An act which is first judged by its results, later comes to be accepted as a matter of habit, without examination as to whether it actually accomplishes its purpose. It satisfies conscience without giving benefit. It is frequently nothing more than a gesture aimed in the general direction of the mouth, like the small boy's efforts to wash his ears.

Brushing the mouth once over may produce cleanliness, but only exercise represented by repeated use of the brush can produce health. The "daily dozen" if done but once is simply a gesture. To give tangible results, it must be done repeatedly until that stimulating effect has been produced which is recognizable by the glow which accompanies the quickening of the blood stream. This same sensation of glow is obtainable in the mouth.

The results which have just been described are those which can be seen after the first use of the brush. This gives the coloration and appearance of health. What is more important is the actual building up of tone and health which can come only with the daily influence of the brush. In most instances, health can be attained. Let me give this advice to those of you who are interested in this talk,—go to your dentist and have him remove all deposits and stains and thoroughly polish your teeth before taking up this method of brushing. I know of no way to make your dollars bring you in a greater return in terms of mouth health. Remember, however, that health cannot be purchased—it must be earned.

Musings*

C. S. MACARTHUR, D.D.S., TRURO, N.S.

JUDGING by an experience of approximately twenty-five years, I have no hesitancy in proclaiming the Nova Scotia Dental Association an institution of actors, in the sense that the life-work of its active members consists in *doing* rather than criticizing; and bound together by an ambition to carry out, as efficiently as possible, good dentistry in every sense of the word. This does not mean that even routine duties are performed alike by all, but rather that each in his little sphere is actuated by a desire to render an expected service in such manner as will be satisfactory to himself and the patient, and in full keeping with the best teachings and traditions of our profession. Achievement, not alone for one's self, but for others.

Looking back a brief fifteen years we cannot but be profoundly impressed, I might almost say awe-struck, at the advances made in both preaching and practice; and it surely behooves us to make a searching inventory of our every habit and privately but honestly appraise our present position.

Not often by new and easy ways, short cuts, is real work accomplished; rather is it by holding hard the handles of the plough and driving the furrow through. The newest practitioners include a large number of men of the first ability; far better educated than I was, or the majority of my associates were, when we graduated. The curricula of to-day are more thorough and practical. Also, the people generally are better educated as to the importance of our services and are looking to us for better service.

Bearing all this in mind, the one question of paramount importance seems to me to be, "What is our tendency?" Shall we be content to carry on as we began, or shall to-morrow's work be done a little better than to-day's?

Circumstances, perhaps, rather than choice, have led me to devote more than usual attention for several years past to the teeth of our younger patients; and, while bearing in mind the title of this paper, I make bold to recount, as briefly as possible, some of the things I believe I have learned in my efforts to deal with little children.

By all odds the hardest factor with which I have to contend is the preconceived idea in the mind of the child as to the horrors of a dental office. Parents, unfortunately, and the older members of the family, do not hesitate to recount in lurid and superlative language, the tortures, real and imaginary, which they consider they have endured at the hands of their dentist; and small wonder that the little one becomes

* Read before Nova Scotia Dental Society, July, 1925.

imbued with like ideas. When an appointment is made for a child's first visit, I try to find out first whether or not it has been willing to come, what preconceived ideas it may have, and I always instruct the parent to give all the encouraging advice they can, but if possible to make no reference to pain and suffering; I much prefer to attend to this phase myself.

Positively the first thing I aim to do is to win the confidence of the child; and until I believe I have made a satisfactory start in this direction I never bring it into the operating-room. As to how this is best done, we must vary the procedure with the individual, and I do not believe it beyond the ability of the average practitioner to decide with ninety per cent. of success. Toys and picture books may well form a part of the reception room outfit, and when choosing the former do not forget that a toy which will move is always more interesting to the child mind than a mere correct reproduction of a well-known object.

Should there be an evident timidity in approaching the chair, I do not urge but rather *invite* it to come with me and see all the funny things I have to work with. The fountain cuspidor is an excellent introduction to the average tot, and time spent in showing and explaining how it operates is rarely time lost. Next I probably raise and lower the chair several times, show the various levers and what they will do, gradually adjusting it for the little newcomer. Let the child lower the chair itself, and a pleased smile invariably accompanies the discovery that its efforts have been as successful as mine were. Next allow it to try elevating the chair and smilingly joke about the probable failure, at the same time telling him he will be able to do it when he is a little older. With the chair elevated high as it will go, I climb in and allow him to lower me, watching carefully that the little foot does not get caught as the lowest position is reached. Now propose that he get in all by himself, if he can, and you will give him a ride; and do not fail to express your surprise at his ability to do so unassisted.

In his present position he now sees the instruments on the bracket table, but I usually attempt here an introduction to the engine by showing the cable moving at different speeds. Insert a mandrel upon which is mounted a large sized sand-paper disk. Explain its use by showing the effect upon an old bit of amalgam, and you can probably get him to hold the handpiece and help you do a bit of polishing. Next a Robinson's bristle brush is demonstrated, and a rubber polishing cup, with which latter you can usually get him to allow you to clean his finger-nail; and he at once recognizes that it does not hurt him. Now I pick up my mouth mirror, always a magnifying one, and, after gazing intently into it myself for a moment, I slowly bring it within an inch or so of his eye and ask him if he knew his eyes were so big. If

I think it wise, I at this stage tell him that when we have done a little work for him I am going to give him one of these looking-glasses to take home and show his brothers and sisters what big eyes they have. I have at least one patient well over twenty years of age who still has the mirror I gave her when she paid me her first visit.

Next in order comes a little story about the teeth and how some nasty stuff gets into them at times, makes holes in them and causes them to ache, so that it hurts to chew on that tooth; but that he is going to help me get all that bad stuff out of the hole and put a filling in so that the tooth will be all well again. Almost at the first touch of the excavator I express my surprise that he is so good, for I thought he was afraid of me and I find that he has just been fooling me and is not at all afraid. As the excavating progresses keep constantly encouraging him by commending his bravery and comparing *his behavior* with that of "another little boy, bigger than you, too, who would not help me a bit, but kept wiggling about and crying so that I could not fix his tooth nicely at all." The pride of a child can always be thus appealed to when most other subterfuges give but indifferent results. Long before you hurt, make a face and tell him that you knew that hurt, but that he was real good and did not cry a bit. Assure him that sometimes you have to hurt, but that you will do it as easily and slowly as possible, and, with his help, you will soon get it all done. Whatever you do, you must give as little pain as possible during the first sitting, which should never be so long as to tire him. Rather than do this and lose the ground I have gained, I stop the cavity temporarily and make another appointment.

At this stage it would seem pertinent to make one or two observations which many operators are prone to lose sight of. Without taking your time to enumerate authorities and reasons, let me implore you to remember: *First*, the pulp of a deciduous tooth is proportionately very much larger than that of a permanent one, and consequently there is not nearly so much leeway if an exposure is to be avoided. In many teeth we will find the pulp so near the enamel surface, in some positions, that it is impractical to insert a metal filling, and not even an oxyphosphate, without grave danger of devitalizing the pulp. *Second*, the sensory nerves of these teeth are not so acutely sensitive as are those of the permanent teeth, and we all have made accidental exposures and doubtless attributed the lack of sensitivity to lowered vitality or partially non-vital pulp. *Third*, cool or cold water does not produce the same shock in the child's tooth as it does in yours or mine; in fact, you will often find that cool water is preferable for syringing a cavity in course of preparation.

Let us now suppose that we have our little patient in the chair for

the first time, persuaded that he is in safe hands, and take our first look in his mouth. He is from four to five years of age, has not been taught proper use of his tooth-brush, and a slight ache while eating has impelled the parent to seek your assistance. The probable cause of discomfort lies in the interproximal space between two lower molars, but you also find similar cavities in the upper incisors, possibly gingival cavities also, and a general prophylaxis is demanded. Of course the molars should receive first attention, and, though there has been some aching, we find no actual exposure and can properly consider a permanent filling. Using the technique just given, we get both cavities prepared and can probably place an amalgam filling in the proximal cavity of the second molar in orthodox fashion with "extension for prevention" and satisfactory margins. The distal of the first molar is the immediate problem; but in order to properly finish the one just inserted, as well as to test the aching tooth for possible pulpitis, I prefer a pledget of cotton saturated with oil of cloves, covered rather firmly by another bit held to place by a drop of Sandarac varnish. At the next sitting the amalgam is polished with fine cuttle-fish disks. The suspicious tooth has been comfortable meantime, but has no definite buccal or lingual walls to provide retention. I take a No. 37 or 38 bur, new, and with engine running rapidly, cut a groove in the occlusal surface probably slightly more than to the centre of tooth. In many cases I do not go entirely through the enamel in depth, and have been gratefully surprised at the degree of retention thus obtained. If the dentine immediately overlying the pulp is soft, I paint the interior of the cavity with a saturated solution of silver nitrate, followed almost immediately by a drop of oil of cloves, which I prefer to the frequently prescribed formalin solution; keep dry for about a minute if possible, absorb the excess and pack a bit of dry absorbent cotton in cavity till I have prepared the matrix and mixed the amalgam. Rather more than usual care should be taken in placing this amalgam, and all reasonable pressure used in its condensation. Shape as thoroughly as you can before removing the matrix, and, after removing it, I use a strip of China silk followed by one of rubber dam to smooth the gingival margin; then restore the contact point by burnishing before amalgam gets too hard. I always try to trim such a filling so that it is slightly short of occlusion, though this is of secondary importance to a contact point or line. In all probability the patient has had enough firm handling during this operation to make him slightly apprehensive, if not actually afraid. Whether so or not, I should now proceed to the prophylaxis, which can readily be turned into a game, by starting with a rubber cup which cannot possibly hurt, using the hot water syringe, which he may hold during intervals and perhaps fill for you ere you use it again.

Rarely is there any trouble during this phase of your attention, and confidence is restored by the game, which has led him to forget the pain once you in detail remind him of what has been accomplished with his help.

The incisors now claim attention and, with the exception of abscessed teeth, these proximal and gingival cavities have given me most concern. Aesthetic consideration must be given, especially with some parents, and our choice of filling materials is therefore restricted to oxyphosphate cement, synthetic enamel or gutta percha. I have found cement advisable where the dentine is sufficiently hard and the cavity not too deep to render its use dangerous to the pulp. Synthetic I believe so impracticable that I do not consider it. Gutta percha can be used in cervical cavities, but in proximal areas I find it difficult to manipulate, and, due to breaking down or fracture of marginal enamel, its permanency is questionable. For three years past I have urged the use of copper amalgam in all such positions, and have had but little difficulty in convincing the parent that the benefits accruing far more than counterbalance the objectionable color.

The question as to whether or not it is advisable to treat and fill an abscessed tooth for a child must, I believe, be decided by the dentist, who in turn will have to be guided by circumstances surrounding the individual case. That it can be done, and with a measurable degree of success, there is no doubt; whether or not the parent is willing to pay for it must often be the deciding factor; for, making all due allowance for the child's welfare, we cannot be expected to do so for a juvenile fee.

Quite occasionally good practice demands we undertake such a case. Usually we find the pulp practically non-existent, and our efforts are devoted to cleansing and filling the canals. Free access must, of course, be first attained; and, after washing out as much as possible of the canal contents, I follow with J. & J. cotton points. If a broach is used, it must be handled with extreme care, and where a fistula is present I do not use them, preferring to trust to irrigation, followed by a cotton point dipped in formocresol and sealed with temporary stopping until the next sitting, when we will not infrequently find the fistula closed and complete comfort restored. Personally I prefer a second application of formocresol and at least a week's comfort. In choosing a root canal filling I prefer to pin my faith to the antiseptic properties of the material rather than to complete filling exactly to the apex, and have had happy results from oxpara, zinc oxide and iodoform in oil of cloves, and in at least one case with nothing more than J. & J. cotton points dipped in a saturated solution of silver nitrate. If you are prepared beforehand with an interesting story wherewith you may

distract the attention of the patient, you will be gratified at the length of time you can keep him still and the degree of dryness you can maintain in the mouth. To apply the rubber dam is usually out of the question, and one must do his best with the assistance of napkins and cotton rolls. Possibly after all my care I find, several weeks or a month later, that the fistula has again become established, and the decision between extraction and a further treatment must be made. If I find simply the fistula present and no swelling or sponginess of surrounding gums, general health good and no inconvenience manifested, I leave it and prepare for a course of watchful waiting. My every effort here is to retain the deciduous tooth until its term for exfoliation arrives; and, while taking chances not in keeping with the majority of teaching, I am reasonably well satisfied with this procedure. I do not wish to imply that success crowns 100 per cent. of these cases; but experience satisfies me that it is well worth while, always providing I have frequent opportunity to watch the teeth.

One other expedient I must mention in dealing with deciduous teeth. Quite frequently we meet cases where for various reasons it is not expedient to do a permanent restoration. I refer to vital teeth with but a shell of enamel remaining and in which the insertion of either amalgam or oxyphosphate is but to court failure; but where pulp is vital, superficial excavation is all that can be done, and a filling of zinc oxide mixed to a fairly stiff consistency with either oil of cloves or eugenol will be found most valuable. If the tooth has not ached and I can leave a layer of dentine, even if it is discolored and leathery, I add a few crystals of silver nitrate. The latter combination will set more quickly, is more coherent, and results are eminently pleasing.

Doubtless the most important tooth in the child's mouth is the six-year molar, and a discussion of its welfare might well provide a subject for a full session; but, lest I have already taxed your patience to a reasonable limit, I most earnestly recommend your study of a paper on "Preventive Dentistry" in the April and May issues of the *Dental Items of Interest*, written by Thaddeus P. Hyatt, Dental Director of the Metropolitan Life Insurance Company. Were such a testimonial possible, I should designate it the most valuable single paper I have ever read.

If in retrospect we look for a moment on the actual accomplishments of our chosen profession, we are forced to the lamentable conclusion that we are still very far from our goal of a sound dental armament in the average mouth. Looking at it in the broadest sense, it is questionable if we have kept pace with our so-called civilization. During the past three or four years, as I have attempted to give kindergarten instruction to the pupils of the Provincial Normal College on oral hygiene and care of the teeth, I have been particularly impressed at the task before us.

"So much to do, so little done," to quote the dying words of the late Cecil Rhodes.

Has it ever occurred to us, I wonder, that our daily efforts are most illogical? Locking the door after the horse has been stolen is surely so; and yet the bulk of our work is almost wholly reparative rather than preventive, or, better still, constructive. Quite true that we are, and will be for the duration of our active practices, immediately concerned with conditions as they exist in the mouths of the *present* generation; but this is no reason why we should not do our utmost in a constructive way. In short, I mean that it is quite within our province to give the mothers among our clientele professional advice in the matter of both pre-natal and post-natal diet. Too much of our work is restricted to patchwork, for such the best filling or artificial denture is; and just so surely as we wish for a better class of teeth in succeeding generations we must begin to build in the present. The rules are so few and simple that I would almost say we are recreant in our duty if we do not proffer our services, whether sought or not. Any claim that by so doing we are infringing on the prerogatives of the medical profession I do not consider at all well founded; for each of us must at some time or other have been surprised at the evident ignorance of some medical practitioners—and I say this with all kindness and respect for them—as to diet value from a dental standpoint.

Coupled with correct dietary must be a proper correlative functioning of the various endocrine glands; for correct diet alone will not produce the desired results if the metabolism is faulty; and here is where we must work in conjunction with our medical brethren.

Is the contract too big or the time not yet for so ambitious a project? I believe not, for I have tried it and am already getting results which are most encouraging. "Man must reach higher than he can grasp, or what is heaven for?"

CARBOLIC ACID UNDER PRESSURE.—It has been frequently stated that carbolic acid has anæsthetic properties, but if it has, the writer has failed to discover them. The beauty about carbolic acid is that it kills whatever it touches. Using it under pressure within a tooth, it kills instantly every vestige of pulp with which it comes in contact. Immediately upon the removal of this freshly devitalized pulp the root should be filled, as there is no anæsthetic effect anywhere whatsoever. Gutta-percha base plate is always used for producing pressure, never soft rubber or temporary stopping.—*Dental Items of Interest.*

Dental Nurses' Convention, 1925



THE third annual convention of the Dental Nurses was held in Toronto on May 26, 27 and 28, 1925, at the time and place of the Ontario Dental Association meeting.

PROCEEDINGS, MAY 27TH.

10 a.m.—Dr. F. J. Conboy, Director of Dental Services, Ontario.

11 a.m.—Dr. J. W. Hunt, Clinical Specialist, Department of Health, gave a most interesting and illuminating address on "Communicable Disease Lesions of the Mouth and Throat."

1 p.m.—The Dental Nurses were tendered a luncheon by the National Refining Company, of Toronto, in the Music Room of Hart House, and Mr. William McTavish presided. Miss Detwiler and Mr. Frank Oldfield rendered several very delightful vocal selections. The speaker on this occasion was Capt. A. D. Robb, a man of striking personality and one who rendered service overseas. His subject was "What Conceptions Young People Have To-day of Life." The first conception is that life is a great playground; all the world is a great theatre, and everything in it a great spectacle for our amusement. Then from babyhood we emerge with the idea that life is something more than a playground—we visualize it as a school, the world a place for conquest, for ideals, no longer a playground, but "I" the centre around which the world revolves, and we fancy we are going to sail through life without any difficulties. Alas! how quickly disillusionment comes. Life is a tremendous game, to be played as a sportsman plays it. Then we begin to discover the real reason of life and the real training of life. As we get older life is not a theatre to us, not merely a playground, nor yet a game, but like a school where we learn by system or note. If we look at life as a theatre or playground, or something to amuse us, then we will go through life unhappy, disgruntled and discontented; but if we look at life as being full of tremendous possibilities we will discover then the worth-whileness of life. When someone passes on we will not say he made so much money, but that he did so many things for the advancement of society, for the advancement of science, or for the advancement of the human race. Life is not worth very much at all unless it represents some sort of service which makes for the happiness of the home and the advancement of the human race. Capt. Robb concluded his remarks with that very apt quotation:

"Isn't it strange that princes and kings,
And clowns that caper in sawdust rings,
And common folk, like you and me,
Are builders for eternity?"

“To each is given a bag of tools,
A shapeless mass and a set of rules,
And each must fashion, ere life is flown,
A stumbling block or a stepping stone.”

A vote of thanks to Mr. McTavish, Miss Detwiler, Mr. Frank Oldfield and Capt. Robb was moved by Dorothy McEnaney and seconded by Miss Rose.

* * *

Communicable Disease Lesions of the Mouth and Throat

DR. J. W. HUNT.



HAVE been asked by the Director of Dental Services to talk to you this morning on the communicable disease lesions of the mouth and throat which you are likely to come in contact with while practising your profession.

In discussing a question of this kind, cognizance must be taken of those conditions which might be termed non-communicable, as, from the standpoint of differential diagnosis, they very often so closely resemble those which are communicable that diagnosis is exceedingly difficult.

What, then, are the commoner conditions, communicable and otherwise, that the clinician might find as he examines the buccal pharyngeal cavities? For purposes of discussion they might very well fall under two headings, namely: those that are acute or febrile, and those that are chronic or non-febrile.

The following is a list of these conditions or lesions as classified under the above headings:

Febrile.

Diphtheria.
Scarlet fever.
Measles.
Smallpox.
Acute Follicular Tonsillitis.
Acute Strep. Infection.
Vincent's Angina.

Non-Febrile.

Simple Ulcer.
Syphilis.
Tuberculosis.
Epithelioma.
Leucoplakia.

It is not the purpose of this paper to refer at any length to the differential diagnosis between any of the above diseases. This is primarily a matter for the physician and surgeon. Rather is it the intention to but mention them, with a brief description of the same.

I.—THE ACUTE FEBRILE DISEASES.

The clinical manifestations of these diseases are more or less familiar to all present, and one might safely venture the suggestion that you are

not at all likely to come in contact with many of them. When a case of diphtheria has progressed to the point of showing a membrane on the throat, or a case of scarlet fever a generalized rash, or a smallpox patient pustules in the mouth, he is too ill to be found in a dental surgeon's chair. There are, however, mild cases of these pyrexias, where the toxæmia is slight and the constitutional disturbance is not at all severe, which might find their way into the surgery and whom you would be called upon to examine for some dental abnormality.

The predominant physical sign of diphtheria in the throat is the heavy greyish membrane which may appear as an isolated patch in one or both tonsils, or be so extensive as to cover both tonsils, the soft palate, and even extend up into the posterior nares. This latter is only found in the severe type of the disease. The membrane is firmly adherent to the tissues, and upon being forcibly detached leaves a bleeding surface.

One of the diagnostic features in scarlet fever which may be of interest to you, besides the infection of the mucous membrane, is the so-called "strawberry tongue." This is a condition where the papillae of the tongue become enlarged, and on an already infected surface give the appearance of a ripe strawberry.

In measles we have what are known as "Koplik's Spots." These are spots or papules, sometimes slightly bluish in color, which appear in the mucous membrane inside the cheek. These when present are pathognomonic of measles, and a diagnosis can be made even when other signs or symptoms are absent.

Smallpox.—The vesicles and pustules of this disease sometimes appear in the mouth. When this happens, however, the case is a clear-cut one and the rash pretty well generalized.

Most of us at one time or another have had a close acquaintance with acute Follicular Tonsillitis, a condition where the follicles of the acutely inflamed tonsil throw out a white secretion which appears as white spots on the surface. Sometimes these spots coalesce and a false membrane is produced, which may give rise to a suspicion of diphtheria. This secretion is easily rubbed off, however; the condition clears up under suitable medical treatment. Tonsils that are chronically enlarged often show a few of these spots on the surface.

A case with acute streptococcal inflammation of the throat will be found in a hospital rather than a dental surgery. The infection is severe and the toxæmia great. You will not meet with these cases in the routine of dental practice.

Vincent's Angina.—This is an affection of the tonsils and pharynx, the ulcer-membranous character of which resembles diphtheria, and sometimes the mucous patches of syphilis. It was discovered by Dr. Vincent, and occurs in anaemic and otherwise debilitated subjects.

II.—NON-FEBRILE DISEASES.

Under this heading, easily the most important and most dangerous, from the standpoint of infection, to the dental examiner, whether surgeon or nurse, stands syphilis. Syphilis is usually described as occurring in three stages—primary, secondary and tertiary, and lesions of all three stages may be found in the mouth and throat. The advent of the primary or first stage of the disease is heralded by the appearance of the chancre. This first starts as a papule or pimple, the surface of which soon gets rubbed off; secondary infection sets in, and we soon have the characteristic ulcer. This in its typical form may be about the size of a five-cent piece, becomes very hard and, when felt, feels like a piece of cartilage in the skin. What is of particular interest to your profession is that chancres may be found on the lip, tongue or tonsil. They are highly infectious, and the examiner may very well become infected with the disease unless the utmost precaution is taken.

The outstanding manifestation of the second stage occurring in the mouth is what is called the mucous patch. This is a bluish-white or grey spot, more or less circular in outline, appearing in the mucous membrane of the lips, tongue, and sometimes the pharynx. If the case is allowed to go unattended these spots become ulcerated, and then we have a more or less extensive ulceration appearing anywhere in the buccal mucous membrane. The mucous patch is also highly infectious, and is fraught with danger to the individual who attempts to treat or examine a mouth in which it is present. And just here let me refer to one cardinal principle. Always look with suspicion on any ulcer occurring in the mouth, and never examine or treat a patient without wearing rubber gloves.

The lesions of the third stage of syphilis appearing in the mouth usually affect the tongue, though we may have ulcerations in the tonsil, pharynx and palate. The tongue may be affected in one of two ways: either a localized, sharply defined ulceration called a gumma, or a generalized enlargement and malformation called syphilis glossitis. The lesions of the third stage are not as infectious as those in the primary and secondary stages.

Before leaving syphilis there is one other condition to which I would like to refer, and that is "Hutchinson's teeth." This is a result of hereditary syphilis, and consists of a notching of the upper central incisors, though other teeth may be affected as well. The condition usually disappears after about the thirtieth year, owing to the edges of the teeth being worn away.

Cancer and tuberculosis also cause ulcerating conditions in the mouth, particularly of the tongue, and these may bear a close resemblance to the gummatous conditions referred to above. Rapidity of

growth, however, is one very strong diagnostic feature, for syphilis will do in weeks what would take cancerous or tuberculous growths months or even years to accomplish in the way of destruction of tissues.

Leucoplakia.—This is sometimes described as psoriasis of the mouth. The lesion consists of the formation of greyish-white patches on the inner side of the cheek and lip and on the tongue. It sometimes goes on to the point of extensive ulceration. It is supposed to be syphilitic in origin.

A simple ulcer is sometimes met with anywhere on the mucous membrane of the mouth, usually opposite an irritating tooth. It is due to traumatism or injury, and heals under simple remedies once the cause is removed.

This is but a brief review, but it may help you, to a certain extent at least, to become more familiar with most of the lesions you are at all likely to meet with in the practice of your specialty.

* * *

The Use of the Tooth Brush*

DR. PAUL R. STILLMAN, NEW YORK CITY.



FEW people who make daily use of the tooth brush have the right conception of its purpose. The primary aim should always be for health. Health and cleanliness are not synonymous, although cleanliness of the mouth is always assured when it is clean. But, on the other hand, it does not follow that bathing or cleansing the surfaces of the body will insure health. Health of the body, and this is equally true of the oral cavity, requires more than cleanliness.

Most people use the toothbrush for the primary purpose of cleaning, hoping thereby to produce a whitening of their teeth. They usually employ the tooth brush as a scrubbing brush, which defeats the very object of their purpose. What the teeth need is cleanliness, exercise and function, in order to keep their beauty. This latter, viz., function, is the key of dental health, rather than cleanliness; cleanliness without function is as futile as a means of keeping the teeth healthy as bathing without exercise is for the body.

In order to have the tooth brush produce the results desired, the manner of its use must produce an effect which is analogous to that of function. The function of the teeth is largely mastication. And it is evident that Nature's intention is that teeth should be practically self-cleansing through their normal use. The old idea has been to

* Dr. Stillman's Address was broadcasted the same evening.

scrub the teeth only; the new plan is to produce in the teeth and gums an adequate stimulation of the blood supply, and thus assist those natural tendencies which Nature has provided for the maintenance of health.

To use a tooth brush as a scrubbing brush is used, or as a whisk broom is used, amounts to little more as a health producing measure than to make a gesture in the general direction of the head. It is in the first place inadequate, but what is more serious, such technique really produces an irritation to the gingiva. And we all know that continued irritation, no matter how slight, results in serious effects if continued as a habit.

* * *

Preventive Dentistry

DR. HARRY S. THOMSON, TORONTO.

DR. THOMSON prefaced his remarks with a few observations which he made while visiting dental offices on his trips from Coast to Coast, and he mentioned that one of two outstanding things he had noticed was the fact that dental nurses so often reflected the mood of the dentist when a patient came into the office or called on the 'phone. The dentist may be in sorts or out of sorts, happy or sad; the patient may be pleasant or unpleasant; but in spite of this, the dental nurse should maintain 100 per cent. cheerfulness, particularly in her relations with the patient.

Then he proceeded with his subject, telling of the great changes that have been made in dentistry; how preventive dentistry has been forced upon us. Dr. Hunter, eleven years ago, first told us that diseased teeth caused illness of the body; that a diseased condition existing around the tooth caused a diseased condition of the body by infection getting into the blood stream and thus setting up trouble in some part of the anatomy where resistance was low. He used as an illustration the story of the mill stream getting cluttered up here and there with twigs and chips, and finally causing congestion further down the river.

Our resistance is lowered through overwork, worry, exposure to cold and wet, so it is of the greatest importance that an area of infection should be x-rayed. For instance, a tooth that has been devitalized may be a source of infection. A vital, healthy tooth can never cause infection.

A great change has been brought about recently through literature and advertisements coming into the home. Almost every magazine to-day carries several advertisements of food products—yeast, tooth

paste and tooth brushes—all of which in a sort of a way tell the story of diseased mouth and general disease conditions. Some of this is good and some of it is bad. Our duty as dentists and dental nurses is to set our patients right when they are wrong, to recognize by the very fact that they read these advertisements and ask us questions that they are interested. They will ask the dental nurse questions they would never think of asking the dentist, and in this way your field of usefulness is being enlarged every day. So be prepared for it by reading all the current literature on preventive dentistry that is available.

In Toronto, in 1913, 95 per cent. of the school children had decayed teeth; in 1925, 52 per cent. of the school children had decayed teeth.

Enamel will never decay if properly formed. With the exception of the four wisdom teeth, the enamel of every tooth is formed when the child reaches the age of seven years. Therefore the most important time in preventive dentistry should be during the nine months of pre-natal life and the first seven years of childhood—or, in other words, during the period of enamel formation. The baby teeth which come through the gums when the child is six months old begin to form at the third month of pre-natal life; the permanent teeth that come through the gums when the child is six years old begin to form about the eighth month of pre-natal life. This shows you the importance of carrying this knowledge of tooth formation to mothers and prospective mothers.

Diet.—In order to build healthy tooth structure there must be natural foods used—uncooked foods largely. Natural foods consist of: dairy products, whole wheat bread, baked potatoes, raw fruits, raw vegetables, etc., and there must be exercise by definite chewing.

This also is a big factor in promoting healthy tooth structure. Oral hygiene is a most important factor. Due to irregularities, malformations and decay, food lodges between the teeth, fermentation takes place very rapidly, with a constant temperature of 98 degrees moisture and the presence of bacteria; decay of food substances takes place about sixteen times faster in the mouth than in the open air at the same temperature. So let us remember this when the patient asks us if it is necessary to brush the teeth, and how often.

Dr. Adams introduced the first free clinic in the world, and there are now thirty-five dentists in the city of Toronto devoting six half-days of each week to free clinics.

Dr. Thomson also mentioned one of the outstanding facts in life—that loving one's work made for success, and he brought his most inspiring address to a close by quoting those famous lines of Henry Van Dyke on "Work"—"Let me but do my work from day to day," etc.

Oral Hygiene

DR. JOHN OPPIE MCCALL, NEW YORK CITY.

DR. McCALL outlined the difference in the condition of dentistry to-day and that of years ago, relating some of his experiences as a lad in his father's office, and how dental science has greatly advanced during the last decade. He spoke more particularly on preventive dentistry, which he claims is the broadest term we can use in speaking of the prevention of disease in the mouth. His lecture, one might say, was almost the equal of Dr. Paul Stillman's the day before, as he emphasized cleanliness of the mouth and the proper use of the tooth brush.

Oral hygiene consists of measures which are Nature's measures for preserving health. We bathe, eat proper food, have plenty of rest, sufficient sunshine and fresh air. These are all preservatives of health.

Prophylaxis.—Artificial means of protection against disease by eradicable measures which build up resistance against disease. Remodelling of the enamel of the tooth is a prophylactic measure.

The dental nurse has a very proper function in the field of oral hygiene. She could very well take up the use of the tooth brush, so that she could brush patients' teeth for them. To learn to brush teeth in the proper way, and to take such steps that she will be legally permitted to brush in the office with which she is associated, would be well worth while. Showing a patient once, or even twice, how to brush the teeth in the proper way is not sufficient; it takes six or seven times before the patient has acquired the right way.

Benefits of Brushing.—We feel that the tooth brush, used as demonstrated by Dr. Stillman, is going to be a means for giving a higher degree of health to the public than anything else.

Teaching the Young Children.—By this means it will give the dentist an opportunity to see if anything else is required. It will also give the patient a stimulus, and it will help him to keep a grip on the situation.

History of the Method of Tooth Brushing.—After many years' experience in periodontal dentistry, Dr. Charters, of Iowa, advocated a method that was so revolutionary that it was not accented by other dentists. The method did not carry conviction as described by word of mouth, but it did carry conviction when it was demonstrated in the mouth. The method they are now teaching is modified from Dr. Charters' method, but he was the one who started the ball rolling. The method is really dependent on the brush. The tooth brush will eventually be recognized as one of the chief assets in the health of the nation.

Some Causes of Aging

MALFORD W. THEWLIS, M.D., *New York.*

WHAT are the physiological processes which bring about the condition known to us as senility?

In recent years many physicians have emphasized the importance of the endocrine glands. Lorand and Horsley believed the thyroid gland to be an important factor. It is true that a lack of activity of the thyroid gland produces changes which are similar to those of old age. In cases of thyroid deficiencies, the skin becomes dry and wrinkled, the hair, eyelashes, eyebrows and beard thin. There is muscular weakness, sensitiveness to cold, and, as Brissaud says, "the entire body seems to be asleep." These changes are akin to those of senility, but this is no proof that the thyroid gland is a constant cause of senile changes. In fact, very often, in old age, we find a normal thyroid as well as other normal endocrine glands. We assume that normal senile changes affect the endocrine glands and that these disturbances are a result of old age rather than a cause of it. The importance of the gonads in relation to old age has been greatly exaggerated and there is no evidence to substantiate the use of gonad extracts, and the opinions of the best medical minds are that these glands have little to do with the production of senility. Rejuvenation by means of gland transplantation has been generally discredited.

Metchnikoff maintained that old age was a result of toxemia, caused by syphilis, alcohol and bacteria in the colon. He believed that the putrefactive bacteria in the large intestines produced indol, skatol and phenol, which caused degenerative changes in the cells of the body. With sour milk and cultures of *Bacillus bulgaricus* he hoped to check the process by destroying these bacteria. Sir Arbuthnot Lane believed that chronic toxemia from the intestines was the cause of many senile degenerative changes. Undoubtedly, autointoxication from this source produces abnormal conditions.

Emile Demange believed that senile changes were due "to a change in the quantity and quality of the interstitial nutritive material due to changes in the circulation, and this is due to atheroma and arteriosclerosis." He thought that, as a result of diminished calibre of the arteries, the nutrition to the parts was diminished. R. Thoma wrote "the ceaseless activity of the heart and bloodvessels gradually weakens the elastic fibres of the vessels, as would happen in a piece of rubber which is expanded and contracted with ceaseless regularity. The loss of tone thus occasioned permits a dilatation of the vessels, the circulation is slackened partly through the dilatation and partly through the

lessened contractility of the vessels and the nutrition of the organism is impaired."

Arteriosclerosis has long been looked upon as a cause of senility. However, arteriosclerosis in middle life due to lead poisoning or syphilis is not followed by changes characteristic of old age. There are many old people who do not have arteriosclerosis and it is safe to say that arterial sclerosis does not cause normal old age. According to Sir Humphrey Rolleston, arteriosclerosis is not constant in a considerable degree in old people and cannot be regarded as the cause of the degenerative changes in old age.

Ophulz demonstrated that in many instances old age seemed to retard arteriosclerosis. Rolleston in commenting on Cazali's saying "man is as old as his arteries" says "the adventures of the man are a better index than the state of his arteries."

Much has been said about the results of increased blood pressure. It is a fact that arterial hypertension and arteriosclerosis may not necessarily coexist and we know of no reason why long continued high blood pressure should result in arteriosclerosis. We often find a generalized arteriosclerosis without a history of previous high blood pressure.

Essential hypertension is the term applied to high blood pressure without known cause. There are many people who have an increased blood pressure for years without accident and without resulting arterial changes or even kidney disease. Sir Clifford Allbutt recognized the independence of the conditions and considered arteriosclerosis a degenerative process quite apart from hypertension. We cannot say that high blood pressure will cause kidney or heart disease because we have many examples of patients who never have these diseases. Moreover, we cannot say that a kidney disease is the cause of high blood pressure because so many patients suffering from Bright's disease never have high blood pressure. No doubt in many instances of long continued increased blood pressure, the kidneys and heart finally become affected; even in these cases we cannot infer that the condition is due to increased blood pressure because it is possible that the same factors which cause the kidney and heart disease produce arterial hypertension.

MacCallum concludes that elevated blood pressure acting alone produces little or no change.

The causes of arterial hypertension and arteriosclerosis may be numerous. Syphilis, lead poisoning, infectious diseases, disorders of metabolism and focal infection are important factors.

The theory that high blood pressure is due to kidney disease and a result of increased force spent to drive the blood through the diseased

organ, has been discredited. In searching for pressor substances which cause an arteriolar spasm, it has been found that there are few soluble pressor substances. They are protein in nature and may be bacterial, metabolic, cellular or intestinal in origin. Dale and Dixon described the pressor action of amines such as isoamylamine, p-hydroxyphenylethylamine and phenylamine, which were the result of putrefaction of protein.

Major and Stephenson possibly have thrown a light on a new phase of the study of essential hypertension. They have shown that at least one normal metabolite is a pressor substance. They found that urea, creatin, creatinine and uric acid are without effect on blood pressure, but that guanidin bases have a pressor action to a marked degree. Several of the guanidin bases have this pressor effect. Methyl guanidin and dimethyl guanidin are normal end products of protein metabolism. As pointed out in the *Journal of Laboratory and Clinical Medicine* the guanidin bases produce the symptoms characteristic of essential hypertension, uremia and eclampsia.

Obesity does not necessarily cause increased blood pressure; many patients suffering from elevated blood pressure are thin. We may find many old patients with low blood pressure and children who have a high pressure. Overweight is not always due to overeating; it may be due to metabolic disturbances. However, some patients who have elevated blood pressure improve when their weight is reduced.

The suprarenal gland has been thought by many to be a cause of elevated blood pressure, since adrenalin is said to bring about a similar change. There is nothing to substantiate this theory, and while the thyroid and other glands may do harm in individual cases, they are not to be looked upon as a cause of hypertension or arteriosclerosis.

Excitement and worry are probably important factors in the cause of increased blood pressure. Excessive protein food may have a great deal to do with the condition by causing protein putrefaction in the intestines. Tea, coffee, tobacco and alcohol probably have little to do with the production of elevated blood pressure or arteriosclerosis. The problems of blood pressure and arteriosclerosis are not yet solved.

For a long time it has been supposed that cancer was a disease of civilization, due to over-eating, over-drinking, lack of vitamins and to intestinal toxemia. Other diseases, such as Bright's disease, might possibly have been included with cancer. E. M. Hudson has shown that we have been in error regarding the mortality of cancer. He has made an exhaustive study of the statistics and concludes that cancer is not on the increase; that in three thousand five hundred years we have only reached a point where eighty-six persons in one hundred thousand suffer from this disease. The proportion is small, and there is no reason to

fear the increase of cancer. Hudson believes that cancer is not a disease of civilization. He shows that cancer is on the increase up to the age of puberty, when its mortality is highest; after that time it gradually diminishes until we reach the last years of life, that is, old age, when the disease actually declines.

I. L. Nascher, discussing the causes of aging, stated that, in his opinion, there may be a progressive evolution in cell life; that at one stage of this evolution the cells were most perfectly adapted to their surroundings and their available nutrition; that later, fewer and imperfect cells were formed, and that, finally, the cells were so imperfect and so poorly fitted for the conditions under which they existed that they either did not reproduce or else the organs which they formed could not perform their functions. Nascher further states that the most important factor in the life of the cell is its nutrition, which is derived from the constituents of the blood. "Impairment of the blood, either through the presence of abnormal constituents or some alteration in quantity or quality of the normal constituents, affects not only those cells which derive nutriment from those impaired constituents or assimilate the toxic material. These cells are weakened, their activities are impaired, and they reproduce defective cells."

Rolleston probably presents the most plausible theory in his book, which has been referred to. He states that the process of aging of the cells is just as much a part of their development or life cycle as are their earlier and progressive stages. He believes that there is a more or less definite cycle during which cells multiply and after which they cease to do so. "The atrophy or hypoplasia of the organs is due to diminution of the proliferation of the constituent cells. The cells of the complex organism depend for their duration of life not so much on an inborn store of vitality as on metabolic changes in the colloids which, in their turn, are modified or controlled by extrinsic factors of various kinds."

Carrel and Ebeling point out that the serum of an adult animal restrains the proliferation in vitro of homologous fibroblasts and that its inhibitory power increases progressively as the age of the animal advances. It was evident that the action of serum on homologous fibroblasts was not due to one inhibiting substance only, but rather to the combined action of two substances, one activating and the other inhibitory. In further experiments these scientists show that the growth inhibiting substances are always more pronounced than the activating substances. The activating substances are thermolabile and are probably of the same nature as the growth activating substances contained in embryonic tissue juice and leucocytic extracts or secretions, and may be considered as a product of gland and leucocytic activities.

"It may be supposed, therefore, that the enhanced restraining action of serum in old age is caused by a decrease of the activating substances, or by an increase of the inhibiting substances, or by both." (Carrel and Ebeling.) These authors conclude, under the conditions of their experiments, as follows:

"1. The inhibiting action on homologous fibroblasts of the heated serum of a young animal increases relatively more than that of an old animal. After it has been heated, the inhibiting action of the serum of the old animals is still greater than that of the young animal.

"2. The CO_2 precipitate obtained from the serum of a young animal definitely increases the proliferative activity of homologous fibroblasts, while the CO_2 precipitate of the serum of an old animal has practically no activating power. After the removal of the CO_2 precipitate, the inhibiting action of the serum of young animals is increased, while that of old animals is not modified.

"3. The increased inhibiting action of serum on homologous fibroblasts in old age is partly due to the disappearance of the growth activating substances and to the enhanced activity of the growth inhibiting principles."

Furthermore, Carrel and Ebeling show that egg white mixed with egg yolk and bouillon are not utilized by fibroblasts for multiplication. This fact renders more plausible the hypothesis advanced previously that for proliferation the fibroblasts require some nitrogenous substances elaborated by other cells, which are present in embryonic tissue juices.

We doubt if we can ever discover means of greatly lengthening life. There are many factors at play in the production of premature senility, such as an abnormal mode of living, and the excitement and worry of modern life. Normal old age seems to be a mystery as far as its actual cause is concerned. There seems to be a law of Nature which brings about old age just as it brings birth in a given length of time and puberty at another. If Rolleston is right, there is a more or less definite cycle during which cells multiply and after which they cease to do so. It seems to be the best explanation we have of the cause of normal old age. As for the causes of abnormal old age, to repeat, numerous factors must be considered.—[*Medical Journal and Record.*]

GUTTA PERCHA.—If you do seal any treatment with gutta percha in a tooth, work a few strands of cotton wool into it first. It is more efficient, and resists wear better. This is also excellent for separating the teeth.—*Dental Science Journal of Australia.*

Early History of Anaesthetics

SIDNEY SPOKES, M.R.C.S.

The early history of the use of anaesthetics contains so much of human and scientific interest to the Dental Profession that the paper by Sidney Spokes, M.R.C.S., as it appeared in the British Journal of Dental Science is published in full in this issue.



WE have become so accustomed to the use of anæsthetics that one seldom reflects what a difference they make in modern surgical practice from that of former times; neither do we try to imagine the excitement which their introduction caused. Yet the matter is not without interest, and the "history" is well set out in Dr. Dudley Buxton's excellent book on "Anæsthetics." It seems strange that although Priestley discovered nitrous oxide gas, it was twenty-five years later before Humphry Davy recognized what we call its anæsthetic properties. Dr. Dudley Buxton records that Davy inhaled N_2O and found that it assuaged the pains of toothache. He recorded his own sensations and the behavior of others after inhaling the gas, and thought it might probably be used with advantage "during surgical operations in which no great effusion of blood takes place." But yet again a great interval of time was allowed to elapse—more than forty years—before its practical use was appreciated.

It was at the end of 1844 that Horace Wells, a dentist, was present at a demonstration by Dr. Colton, a lecturer on Chemistry, at Hartford, in Connecticut. Nitrous oxide gas was inhaled from a bladder with a tube attached in the same way that twenty-five years later the present writer first saw it administered at a public lecture with chemical experiments. Such a method could hardly be expected to produce good results, but Wells noticed that the volunteer from the audience was unconscious of an injury sustained whilst under the influence of the gas. There was similar excitement and mental confusion at the demonstration attended by the writer. Wells hoped to make use of his observation in his dental practice and the following day tried the experiment of having a tooth extracted whilst under the effect of the gas, and thus created a record. He used it successfully among his own patients, but it was difficult to get the gas pure and in sufficient quantity; and the requirements for proper administration were not then understood. His first attempt to demonstrate its use to others at the Boston General Hospital was a failure, and other anæsthetics being introduced, the use of nitrous oxide gas was not resuscitated for many years.

In 1849 Dr. Crawford Long, of Jefferson, Jackson Co., U.S.A., published a statement that in 1842 he had removed a small tumor painlessly under ether, but Wm. T. G. Morton, who had been associated with Horace Wells, claimed the monopoly, and it is said that Dr. Jackson suggested to Morton the use of sulphuric ether, which they called "letheon." Dr. Edgar Willett informs the writer that Oliver Wendell Holmes, when in England, in 1886, told him that on Morton asking for a good name for the preparation, he suggested "anæsthetic" for the drug and "anæsthesia" for the condition it produced. James Young Simpson soon afterwards introduced chloroform, and these terms have been in use ever since.

Through the great courtesy of the authorities of Yale University Library the present writer has recently had the opportunity of perusing the letters passing at that time between Professor Benjamin Silliman, of New Haven, and Dr. Gideon Mantell, in England. The former was Professor of Chemistry at Yale, and the most eminent American teacher of science in his day. The latter will be recognized by dental students as the discoverer of the fossil reptile *Iguanodon* with its peculiar leaf-shaped teeth. These two men carried on an intimate correspondence from 1831 to 1852, when Mantell died, and it is with the idea that extracts from such letters, written at the time of the introduction of anæsthesia, may be of historical interest that the following are subjoined.

MANTELL TO SILLIMAN.

"19, Chester Square, Pimlico, January 30, 1847. My very dear Friend The inhalation of ether for the suppression of sensibility during severe operations is now all the rage, and the newspapers are full of details which ought never to have appeared except in medical works. I have not had an opportunity of seeing the practice, and shall wait till the novelty is over, and the practice has become established on safe grounds"

(In England, Robinson, a dentist in Gower Street, performed extractions under ether on December 19, 1846, and on the 21st Liston amputated a thigh.)

Silliman writes to Mantell on February 24, 1847, on ethereal intoxication or stupefaction:—

"I was lately a guest in the house of my friend, Dr. C. T. Jackson, for a few days in Boston. He is a man of science and a medical man of high training, both at home and by many years of study in Europe. He first brought this agent forward, but he wishes it to be known that it is only the *pure ether* that should be employed, not the common ether of the shops, which he thinks may do mischief. His

ether is prepared by repeated washing with water, and I suppose a redistillation from quicklime or alkali. Such ether does not incite to intoxication, producing mild muscular movement, but after a second inhalation prostrates the patient and he drops powerless. Dr. Jackson wishes these facts to be made known to men of science, as those alone for which he is willing to be made answerable. The practice is having a great run in this country, and I have heard of only one alarming instance, which was in Boston while I was there in January, in that the common ether was used and resulted in asphyxia, but not in death."

Mantell, writing on December 30, 1847, after describing the pecuniary difficulties of the nation, politics, and the trouble with Ireland, says:—

"The inhalation of chloroform and other ethereal preparations has been the only scientific subject that has attracted a moment's attention."

MANTELL TO SILLIMAN.

"January 26, 1848 The use of chloroform in parturition is becoming very general; I blush to write that some of our divines—and even some of our physicians!!! doubt the propriety of using it because of the curse pronounced on poor Eve—this is positively true! I no longer wonder at geology being at a discount. I have inhaled the chloroform once, after a night of intense agony from neuralgia; it procured me two hours' sleep and permanent alleviation; but my sleep was not the delicious trance which some experience from its influence. To me, in a physiological point of view, the most remarkable phenomenon is the influence exerted on sensation and consciousness, and on the muscular system generally, while the action of the uterus is in nowise affected thereby; this is really marvellous. I have prescribed its inhalation for spasmodic asthma, and even in the harassing cough of some patients whose lungs are diseased, and with decided temporary benefit. Even in our present imperfect knowledge of its use, the most striking advantages result from its inhalation; and I am persuaded that when experience shall have made us better acquainted with its mode of action, and the means of employing it to the greatest advantage, it will prove to be the most important agent in the alleviation of human suffering"

SILLIMAN TO MANTELL.

"February 6, 1848 I trust you are now beginning in earnest upon your 'Nervous System' (a book projected by Mantell), that mysterious part of the animal organization, and you will best judge whether the suspension of sensation by ether and by chloroform throws

any new light or creates any new difficulties on this subject. I believe I shall request my friend, Dr. John Warren, of Boston, to send you a little book which he has recently published on the etherization, in which he brings forward a peculiar theory as to the suspension of sensation while intelligence may exist. Chloroform is now getting into vogue in this country, and my son is making it or having it made for our apothecaries. Poor Dr. Wells, of Hartford, whose name you may have seen connected with the controversy about priority, has lately committed suicide. He had made so many experiments on himself with chloroform that he produced transient delirium, and in that state issued into Broadway, in New York, and with a worthless rowdy squirted sulphuric acid upon the courtezans who perambulate that street. Being arrested and committed to prison he was so chagrined on coming to his reason that he cut the femoral artery with a razor, under the impression that he had become infamous and would become permanently insane. He left a wife and child and was much esteemed. He had just received the news of a gift of 5,000 francs from Paris as an acknowledgment of his priority in having first applied nitrous oxide to produce insensibility"

SILLIMAN TO MANTELL.'

"February 27, 1848 In my last I remarked upon the use of chloroform, and am happy to hear that it is doing so much good in England. The same excitement exists respecting it here, and I trust that it will prove a great blessing to mankind. I am glad that you have found relief by breathing it and I shall be solicitous to know whether it continues to relieve you and whether any difficulties or dangers arise in the use of it in parturition and for asthma. I hope you will mention it when you write again. I trust that Dr. Warren sent you his little book upon the use of ether, and since that was published a pamphlet has appeared upon the use of chloroform in parturition In New Bedford, Mass., about 30 miles from Boston, an apothecary's lad had been amusing himself and his friends by administering chloroform and had doubtless taken it too freely himself when he passed into violent convulsions and for 16 hours it took the strength of several men to control him until his delirium (tremens, should we not call it?) passed off and left him exhausted and confined to his bed. I should like to know whether any such effects have been produced with you. I believe I mentioned in my letter of February 7 the case of Dr. Wells, whose delirium from too frequent breathing of the chloroform took him into Broadway, N.Y., to squirt sulphuric acid upon women of the town (he being when in his senses a correct and even religious man) and on coming to his senses and finding him-

self in prison he committed suicide from mortification and despair. But this is nothing against chloroform as brandy has often produced similar results and opium too—but the great and prompt activity of chloroform should suggest peculiar caution in its use. I hope you will apply it moderately when you have your paroxysms of pain—it may be sufficient to hold a vial to one nostril, partly covering it and inhaling the vapor along with the air while the other nostril is stopped by the finger; this gives you perfect command of the quantity and the vial may be shifted to the lips and the vapor inhaled with the air. I found it to alleviate the irritation of coughing in a late attack of influenza in my own case. I should like to know more of its effects in chronic as well as occasional coughs. . . .”

MANTELL TO SILLIMAN.

“April 9, 1848 I am writing while in great pain. At that excuse the sad scrawl. I tried chloroform again in one of the severest paroxysms of neuralgia I have experienced for a long time, but though it stupefied me while I breathed it, the moment I discontinued, the pain returned as severe as ever, and for two days my head and stomach were deranged from the inhalation. So I am deprived of all hope of relief from any sedatives, for opiates in any shape are equally inefficient and injurious”

Proceedings of the Nova Scotia Dental Association Meeting, July, 1925



THE thirty-fifth annual convention of the Nova Scotia Dental Association was held in the Casino of the Pines Hotel Digby, on July 16-17th, 1925.

The President, Dr. W. C. Oxner, referred in his opening address to the loss which the Association had suffered since the last annual meeting in the death of Drs. F. W. Ryan, R. H. Woodbury and F. W. Dobson. He expressed a hope for and a belief in the future of Dentistry which was based on the strides which have been taken in the past decade or two. The service of the Dentist was formerly sought merely for the relief of pain, now much more is expected of him. Some practitioners have asked, “Why go to the annual meeting? The Association has never accomplished anything.” But it might be well to pause for a few minutes and enumerate some of its accomplishments. From its very formation, thirty-five years ago, it has stood for the protection not only of its members, but for that of the public as well. This protection has come through one of its branches, the Provincial Dental Board. This statement is made with the full knowledge that the Board

has not been able in all cases to exercise its just authority in the prevention of illegal practice, but they have been able to prevent hundreds of unqualified and undesirable men from practice in this Province. An outstanding attainment was the establishment of a Dental College in the Maritime Provinces, the far-reaching importance of which cannot be estimated. The necessity of dental education and assistance for the public has been a feature, and it is responsible, through one of its committees, the Oral Hygiene Committee, for the establishment in Nova Scotia of a free dental school clinic, for the travelling dental clinic and for the pre-school age dental clinic, the first to be established in America; for bringing to our doors men of outstanding ability for post graduate courses, also for the development of our own men, one of whom was instrumental in the formation of the Dominion Dental Council.

He referred to the Canadian Dental Convention in Halifax and asked for the support of all the members of the Association to make the meeting a success.

The following officers were elected for the ensuing year:

President—Dr. W. C. Oxner, Halifax.

1st Vice-Pres.—Dr. J. T. Roach, Wolfville.

2nd Vice-Pres.—Dr. T. Melanson, Yarmouth.

Secretary—Dr. J. Stanley Bagnall, Halifax.

Dr. S. G. Ritchie, Halifax, was elected to complete the Executive Committee.

Drs. A. F. Hogan and W. W. Woodbury were re-elected members of the Provincial Board, and Dr. G. R. Hennigar elected to fill the vacancy caused by the death of Dr. F. W. Dobson.

Dr. G. K. Thomson, chairman of the Oral Hygiene Educational Committee, presented the report for the past year. He referred to the distribution of reprints of the booklet "How to Build Sound Teeth" to the members of the profession; stressed the need for the appointment of a full time Provincial Dental Health Officer; and also referred to the closing of a number of the clinics of the Massachusetts-Halifax Relief Commission, including the Pre-School Age Dental Clinic.

Dr. A. W. Faulkner, Secretary-Registrar of the Provincial Dental Board, stated in his report that two applications had been received for the Fall examinations (1924), both of whom were successful. The total registration at the present time is 180, of whom 2 are honorary and 14 are non-resident. The dues of all members are paid to date, with the exception of six, who are in arrears one year. Three cases of alleged illegal practice were reported during the year. One was investigated by the Attorney-General's Dept., one was warned by the Secretary-Registrar, and the third placed in the hands of the Board's solicitor with instructions to take the necessary steps for infraction of the Dental Act.

Several changes in the Dental Act have been made during the past year. Section 18 of Chapter 115 was repealed and the following substituted: "Persons holding certificates of qualification of the Dominion Dental Council of Canada, or certificates of said Dominion Dental Council that they have in fact passed the examinations prescribed by said Dominion Dental Council, are exempt from examinations of the Provincial Dental Board, and if all other requirements of the Provincial Dental Board are fulfilled, such persons shall receive a certification of registration to practise dentistry in Nova Scotia."

Section 26 of the same chapter was also repealed and the following substituted:

"Any practitioner who has—

(a) after due enquiry been adjudged by the Board to have been guilty of infamous conduct in any professional respect; or

(b) made any material misrepresentation to the Board or the Registrar in order to procure registration; or

(c) procured a certificate of registration to practise dentistry in Nova Scotia through certificate of qualification of the Dominion Dental Council of Canada, if the certificate granted by the Dominion Dental Council of Canada is cancelled for any cause whatsoever, shall forfeit his right to registration; and his name, if registered, shall by direction of the Board be erased from the register, and his name shall be published in the dental register of the next following year as having been so erased."

Instead of the standard of professional requirements previous to registration being fixed by the Act, control passes to the Dental Board, which, by making By-laws approved by the Governor-in-Council and Association, has the power to establish the curriculum of studies to be pursued, the period of study required, and the necessary examinations to be passed, before granting a license to practise to a candidate.

The following by-law was passed: "The educational requirements for admission to examination for registration in Nova Scotia shall hereafter be one pre-dental year of study and successful examination equivalent to a first year in Arts in a recognized university and four years of professional study and successful examination in a recognized Dental College. These requirements shall not apply to any candidate who has entered upon the study of dentistry before the said requirements are approved by the Governor-in-Council.

Dr. G. K. Thomson, Dean of Dalhousie Dental College, referred to the changes in the Faculty resulting from the death of the late Dean, Dr. F. W. Ryan, and Dr. R. H. Woodbury, Lecturer in Prosthetics; also to the inauguration of a new series of prizes to the graduating class which were designed to encourage reading and study of dental literature. These were awarded for the best articles written after a course of reading on some approved dental subject.

Dr. J. Stanley Bagnall, Chairman of the Library Committee, reported on the work that is being done in building up files of reference magazines. There are almost complete files of all the leading United States and Canadian journals, besides large numbers of the less well known and also the English journals. These files are being built up largely through the generosity of several librarians, including particularly Dr. Bebb of the Northwestern, and Dr. Mills; also by purchase and exchange with other libraries. A plea was made for contributions of magazines and books either to complete files or to be used for exchange.

The afternoon and evening of the first day were devoted almost entirely to business. The programme for the second day opened with a paper by Dr. C. S. McArthur, of Truro, "Musings," which is published in this issue.

This was followed by a paper by Dr. Paul Zillman, of Buffalo, on "Metallurgy of Special Methods Used in Dentistry". This dealt very fully with the structure and treatment of the various metals used in Dentistry.

The President called attention to the fact that Drs. Burden and Gillespie, of Moncton, were present as representatives of the New Brunswick Dental Association to discuss plans for the Canadian Dental Association. They expressed the gratitude of their Association to the Nova Scotia Association for their invitation to assist them in putting on the meeting, and expressed their willingness to do all they could to make the meeting a success.

The advisability of resuming publication of a quarterly bulletin, which was started a number of years ago and then suspended, was discussed. It was decided to leave the matter in the hands of the executive of the Provincial Dental Board, and if funds were available to publish it.

The afternoon was devoted to a series of clinics by Dr. Zillman on casting, wire bending, etc.

At the annual meeting of the Provincial Dental Board the following officers were elected:

President—Dr. W. H. H. Beckwith.

Vice-Pres.—Dr. W. W. Woodbury.

Secretary-Registrar—Dr. A. W. Faulkner.

In the evening the Western Counties Dental Association entertained the visitors at a very successful dance.

A very welcome guest of the Association was Dr. Amy, of Toronto, and it is to be hoped that in future others will follow the plan so well started by him of spending a motor holiday in Nova Scotia and a visit to the Association meetings.

Move Around Before the Ivy Begins to Climb Up Your Legs—An Editorial

BY GEORGE ADE.



WHEN the days are long, get ready to file off the ball and chain.

Wait until the asters are blooming and then, no matter where you are, go somewhere else. Only an oyster remains forever at the old homestead.

If the all-wise Arranger had meant for you to look out of the same window all the time, he wouldn't have given you legs.

The planet you are now visiting may be the only one you ever see. Even if you get a transfer, the next one may not have any Grand Canyon or Niagara Falls.

Move around before the ivy begins to climb up your legs.

It is true that a rolling stone gathers no moss, but it gets rid of the rough corners and takes on a lovely polish. Besides, who wants to be covered with moss?

Go on a journey every year so that you may jolt out of your brittle head-piece the notion that our home township is the steering-gear of the universe.

Some hermits are learned, but only the travellers are wise.

If you have earned a vacation, take it. The time has come to exchange your cold currency for some new sensations. You are due to accept a reward for all the years of sacrifice and denial. But you worry. If you splurge around and have a good time, maybe the children will not have all the funds they need, fifteen years hence, to keep them in red touring cars and squirrel coats.

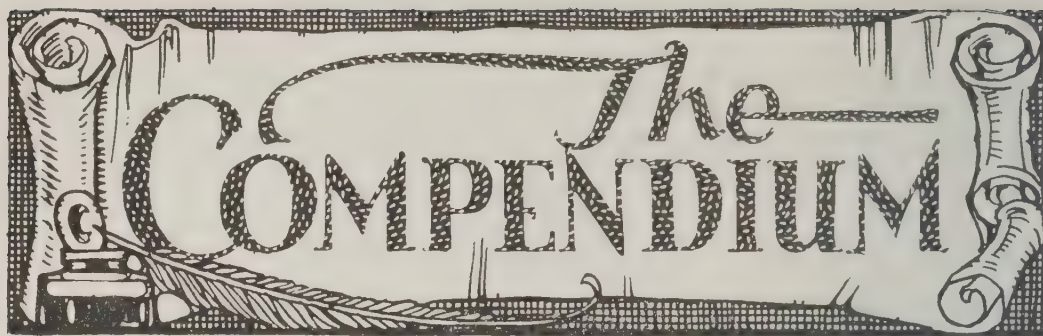
You are afraid to make a will reading as follows:

"Dear Offspring: Go out and get it, the same as I did."

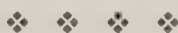
Think of the thousands of worthy old people now penned up at home who ought to be scooting about in Henrys and lake steamers and Pullman cars, rounding out the long day of toil with a late afternoon of gleeful enjoyment! It wouldn't cost them a cent. The heirs would pay all the bills.

We need in this country many Night Schools for Old People. It is time to declare for the rights and privileges of the passing generation. The world and the fulness thereof do not belong entirely to the flapper with the concealed ears and the dancing tadpole whose belt-line is just below the shoulder-blades.

Take your vacations while you can get them. Eventually you may not be able to name the spots you are going to visit next.—*Cosmopolitan.*



This Department is Edited by
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A CHEMICAL METHOD OF ROOT-CANAL TREATMENT.

MOST dentists are agreed that there are some root-canals impossible of filling by purely physical methods. In such cases it has been the custom to attempt the filling by means of chemical processes which involve the precipitation from solution of a solid which will, it is hoped, seal up the minute openings in the canal and so keep the tissues healthy. Perhaps the earliest method in common use was the Howe silver solution. This was an ammoniacal solution of silver nitrate, and it was precipitated by formaldehyde. The chief objection to its use was, of course, its staining properties.

In a recent edition of *The Pacific Dental Gazette*, we are introduced to a new method of root-canal treatment which also is a process of precipitation from solution, but has not the disadvantage of staining the tooth.

The materials used are: barium hydroxide, zinc sulphate and distilled water. Saturated solutions of the barium hydroxide and zinc sulphate are prepared and kept separately in suitable containers.

Before treating the canals with these solutions it is advisable to have the canals as clean as possible, so that the precipitate formed will be deposited upon healthy tissues. The dentine should be treated with alcohol with a view to dehydrating it as thoroughly as possible.

Into the prepared canals the solution of zinc sulphate is pumped by the means of a broach. When the canal is filled with this solution it is best to wait a few minutes to allow for absorption into the tissues. The barium solution is next pumped into the canals. This causes the zinc to be precipitated as a dense white powder. Care should be taken to ensure the complete reaction between the two liquids. Any excess moisture is then removed by suitable absorbent points.

The unfilled portions of the root-canal may be filled with any desired filling material. The deposit of zinc at the ends of the root should, however, be left undisturbed.

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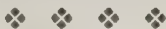
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FALL CLINIC—MONTREAL DENTAL CLUB.

QUON November 5, 6 and 7, 1925, the Montreal Dental Club will hold its fall clinic. The clinicians will include such well-known men as Dr. T. B. Hartzell, Minneapolis, on "Diseases of the Gums"; Dr. G. B. Winter, St. Louis, on "Exodontia"; Dr. Felix French, Ottawa, on "Prosthetics"; Dr. Lowe Young, New York, on "What the General Practitioner Can Do With Orthodontia", and others.

At one evening meeting a prominent American educationist will give an address on "The Influence of the Dental Health of Children on Their Education".

A banquet will be held on another night, and on Saturday afternoon visitors may attend the Varsity-McGill football game at the McGill Stadium.

All ethical dentists are invited to attend this practical clinic. The cost of the clinic is \$25.00.

Further information from Dr. A. L. Walsh, c/o General Hospital, Montreal.

A. N. J.

COLOR.—Matching the color of a porcelain or synthetic filling in a devitalized tooth that is off color. Select your color as usual, and place the powder and liquid on the slab. Take your spatula, go to the window-sill and pick up a tiny speck of soot, or, if there is no soot there, get a tiny speck off the bottom of the vessel you soften your compound in. Incorporate that soot thoroughly in your liquid. Make your mix as you generally do, and place in the tooth. You will be pleased with the result, and I can assure you that little speck of soot will not interfere with the permanency of the filling.—*Dental Summary.*



Dental Clinic at the Canadian National Exhibition

ONE of the new and interesting features at the Canadian National Exhibition, held at Toronto during the first two weeks of September, was the dental clinic. This dental health exhibit attracted much attention, hundreds of thousands of people from all parts of Canada and the United States stopping to watch the dentists make the examinations and take the x-ray pictures. Prominent men who visited the clinic declared it to be one of the most helpful things on the grounds, and that it possessed great educational value.

The clinic was thronged with patients anxious to receive free examination and advice and to have x-ray pictures taken when indicated. During the two weeks, ten hundred and fifty-five patients were examined, and eight hundred and ninety-three x-rays taken. Emergency treatment was given to those in distress.

People from all walks of life took advantage of the services provided, and the information gathered at the clinic proves conclusively that the failure to get much-needed dental work done is not due entirely to inability to pay the required fee; many well-to-do people had a large number of defects needing attention, but they had not been sufficiently well impressed with the urgency of the need. Much educational work must still be done before the general public will fully realize that they must protect their teeth if they hope to enjoy good health.

The clinic was conducted as part of the exhibit of the Ontario Department of Health, the work being done in a little red school house especially built for the purpose and meant to stress the necessity for a school dental service in all parts of the Province. The other dental activities of the Department, namely, hospital department, factory clinics and dental health education, were also forcibly brought to the attention of the people, and many enquiries in regard to these services were answered by the Director of Dental Services, who was in attendance.

The whole undertaking was worked out on a co-operative plan, the space and house being provided by the Ontario Department of Health and the equipment by the Toronto dental dealers. The clinic was manned by the Toronto Academy of Dentistry, two dentists being present each afternoon and evening, and the incidental expenses were taken care of by the Oral Hygiene Committee of the Ontario Dental Association and the Board of Directors of the Royal College of Dental Surgeons.

The clinic was a wonderful success in every way. It was much appreciated by the general public, highly commended by the Hon. Howard Ferguson, Prime Minister of Ontario, and by the Hon. Dr. Godfrey, the Minister of Health, and very well received by the members of the Profession.

* * *

The dental survey of the school children of the Province is being carried on in a most satisfactory manner. More than thirty thousand children were examined during the month of June and a large number of districts are being covered during September. The dentists are co-operating in a most praiseworthy manner and very satisfactory results are being achieved. A more complete report will be presented in a few months.

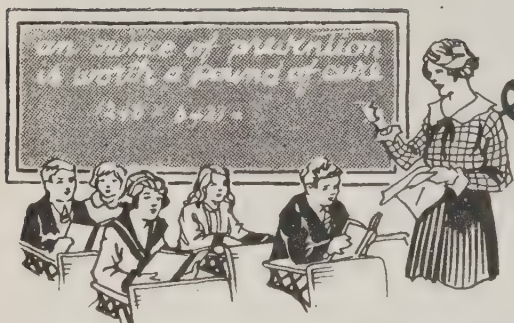
Mental Attitude



WHENEVER you go out of doors, draw the chin in, carry the crown of the head high, and fill the lungs to the utmost; drink in the sunshine; greet your friends with a smile, and put soul into every hand-clasp. Do not fear being misunderstood; and never waste a minute thinking about your enemies. Try to fix firmly in your mind what you would like to do, and then, without violence of direction, you will move straight to the goal.

Keep your mind on the great and splendid things you would like to do; and then, as the days go gliding by, you will find yourself unconsciously seizing upon the opportunities that are required for the fulfilment of your desire, just as the coral insect takes from the running tide the elements it needs. Picture in your mind the able, earnest, useful person you desire to be, and the thought you hold is hourly transforming you into that particular individual.

Thought is supreme. Preserve a right mental attitude—the attitude of courage, frankness, and good-cheer. To think rightly is to create. All things come through desire, and every sincere prayer is answered. We become like that on which our hearts are fixed. Carry your chin in and the crown of your head high. We are gods in the chrysalis.—*Fra Elbertus.*



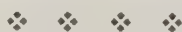
School Dentistry

This Department is Edited by
EDMUND A. GRANT, D.D.S.

Director of Dental Services—Department of
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We are anxious to receive for publication in this Department reports of work carried on in School Dental centres anywhere in Canada. Papers on any phase of Pedodontia would also be welcome.—E.A.G.



Principles of a Community Dental Policy

MICHAEL M. DAVIS, JR.



THIS outline is taken from a report prepared by Mr. Davis for the Committee on Dispensary Development of the United Hospital Fund of New York City, after he had made quite an extensive survey of existing clinic facilities for public dental service in different parts of the United States. Mr. Davis, in addition to recognizing the great public need for more community dental service, seems to have a very clear understanding of the problem from the standpoint of the dental profession.—E.A.G.

(1) Dental care is essential to the maintenance of health, comfort, and working efficiency. It is an essential part of all public or private programmes for the cure or prevention of disease.

(2) Dental needs are at present beyond the reach of existing financial resources and of available professional personnel.

(3) In view of the relatively limited facilities in personnel, plant and equipment that can be secured, compared with the mass of community dental needs, the use of all present and prospective facilities should be determined according to a carefully considered programme; otherwise, misdirected effort and lack of definite results are certain to follow.

(4) A merely curative programme providing care for decayed or diseased teeth cannot be carried through on a sufficiently complete

scale; the prevention of dental decay and disease is the only programme that offers hope for the future.

(5) Dental science and medical science have developed methods of preventive dentistry, the success and the economy of which have been demonstrated practically on a sufficient scale to justify their general application.

(6) In the determination of a programme for any community, it is essential to decide upon two factors: (a) the types of dental work to be done and (b) the types of cases, that is, persons, classified by age or social condition, to whom the several sorts of work should apply.

DENTAL PROGRAMME FOR CHILDREN.

(7) The primary application of preventive dentistry must be to the children.

(8) The test of any plan for children must be not only the number reached and the character of the results achieved for them, but the proportion reached in comparison with the total child population. The aim must be parallel to that of school education, which is to reach 100 per cent. of the children.

(9) If, because of limited facilities, selection has to be made with regard to work to be done, it is important that children of the younger years be reached.

(10) If selection must be made in relation to kinds of service, general prophylaxis and hygienic instruction should come first. The hygienic instruction should include both mouth hygiene and general hygiene. Curative work comes second.

(11) The following principles have been shown in the Association for Improving the Conditions of the Poor of New York City demonstration discussed earlier, to be of practical value and to yield most results for the funds and effort expended.

- (a) Prophylactic cleanings at least once a year, and twice a year if possible, for all children in the first five grades of school.
- (b) Extraction of unsavable and diseased teeth to put the mouth in a hygienic condition.
- (c) Prophylactic fillings (to prevent decay) in all first permanent molars.
- (d) Nitrate of silver treatment to arrest decay in the deciduous teeth which are retained longest.

(12) Orthodontic service, because of its relatively great expense and the very limited dental personnel available for this difficult and highly specialized work, cannot be regarded as feasible for all the

children who need it in any community. In any large community, however, or in any large dental institution, orthodontic work should be developed as far as possible as a service to children, and as a field for the education of dentists and technicians in this important specialty.

(13) A dental programme for children is part of the general child health programme.

(14) Tonsil and adenoid work should be viewed in the same light, not as an adjunct of a dental programme, but as part of the general child health programme, which is associated in many ways with dental care.

DENTAL PROGRAMME FOR ADULTS.

(15) A complete programme in either preventive or curative dentistry for all adults in the community is impracticable.

(16) In determining what dental facilities should be provided for those adults who cannot secure all the dental service that they need from private dentists, the following order of urgency or importance should be maintained:

- (a) Dental service for relief of pain.
- (b) Dental service to persons who are under medical care and whose dental conditions are inseparably associated with their general medical problems.
- (c) Dental service required in the education of dental students and dental hygienists.
- (d) Reparative dentistry of a palliative nature.
- (e) Dental prophylaxis including cleaning and instruction. Dental prophylaxis, however, should always accompany work under (b).

RELATION BETWEEN PRIVATE DENTAL PRACTICE AND ORGANIZED DENTAL FACILITIES.

(17) As to the relation between the dental programme and private dental practice, preventive dentistry cannot be expected to develop as an adjunct of private practice except for that small proportion of the population who have ample means. Preventive dentistry must be dealt with by public and semipublic facilities, in dental institutions or in local or school clinics.

(18) Similarly, curative dental work for both adults and children cannot be handled by private practitioners for a large part of the population, who must be provided for by public or semipublic clinics.

(19) Dental service in clinics should be salaried.

(20) There is no reasonable ground for opposition on the part of private dental practitioners to the development of a preventive or reparative dental programme, on a public or semipublic basis, since there is more work to be done than present and prospective dentists can possibly undertake working as individuals.

(21) Financial Policy: Service for Children. In the maintenance of organized dental service, preventive dentistry for children should be open to all children of school and preschool age on the same terms as is public education:

- (a) With respect to the cost of this service, it should be borne in mind that the estimated cost of tooth cleaning and of instruction in mouth hygiene to children on a large scale is less than 5 per cent. of the usual per capita cost of school education, and is a measure which will make more efficient the other 95 per cent. expended.
- (b) Private organizations maintaining a preventive dental programme for children may properly charge stated fees, which should not exceed cost of the service and which usually must be considered lower than cost in order to reach all the children who need it; and which should always be remitted to those unable to pay.
- (c) For dental care other than prophylaxis, a charge should be made in the clinic, including an admission fee and in addition charges for materials used for fillings, anæsthesia and other purposes; these fees being remitted when necessary.

(22) Financial Policy: Service for Adults. Clinics should charge fees covering the cost of the service, but these should be remitted to persons seriously in need of the service and unable to pay for it.

COMMUNITY ORGANIZATION.

(23) The following general principles are advisable. Prophylactic work for children should be localized in execution but should have centralized professional supervision; curative work, particularly the more elaborate forms, for adults and for children, should be centralized in institutions serving as large population units as possible; some of the simpler forms of curative work may also be in local clinics. In general, community organization of dental service in a large city requires four types of facilities: central institutions; district clinics; prophylactic stations, and hospitals and out-patient departments having dental services.

(24) In a large city containing one or more dental colleges, there should be at least an equal number of central dental institutions, each

of which should be affiliated with a dental college and also with a general hospital and with medical education.

(25) The central institutions should be the scientific and supervisory centre of both prophylactic and curative dental service for the community, but the work actually done within its walls should be primarily for curative dentistry, dental research and dental education.

(26) It is inadvisable to set up institutions which by terms of gift or endowment are restricted to children. An expensive plant and equipment can in many instances also render valuable and needed service to adults at periods which do not conflict with the use of the building for children.

(27) It is undesirable to centralize in one institution curative work for the children in a district of more than 250,000 total population; instead the central institution should be supplemented by branches or by clinics attached to hospitals or to educational organizations that have a professional affiliation with the central institution though not necessarily the same administrative control.

(a) Where a population is highly congested, as in certain large cities, an area including possibly as much as 500,000 total population might be served by a single central institution.

(28) Prophylactic and educational work for children should be decentralized, and should be done through local agencies, primarily the school system.

(29) Experience has shown that localized dental service, as in small unattached clinics or in schools, cannot be maintained at a high level of efficiency without continuous and detailed dental supervision from a professional source of recognized authority.

(30) The benefits of localization of the prophylactic work for children are both financial and educational.

(a) A substantial saving in cost of plant and equipment is achieved by doing the cleansing of teeth in the schools where the building overhead is already carried, and where equipment, being solely for children's prophylaxis, can be of simple and relatively inexpensive character.

(b) A large saving in transportation expense, in incidental inconveniences, in danger to children, and in loss of time by escorts is achieved through decentralizing the prophylactic work, which should reach 100 per cent. of the school population.

(c) Intimate local connection between the prophylactic work and the school system increases for children and parents alike the educational weight of the dental programme; and

links it more closely with the general child health progress than is possible in any other way.

(31) The prophylactic dental work in the schools should be under centralized professional supervision. The staff of a central institution, or one of the central institutions associated with dental colleges, should provide this professional supervision directly, or through one of its branches.

(32) The expenses of a community dental programme are at the present time fairly to be divided between the community (local government) and private individuals such as the board of trustees of the dental institutions and their financial supporters. The first charge upon the municipal interests is dental prophylaxis for children, and, given the right start, an increase in public readiness to assume financial obligations for the support of other branches of community dental service should follow.

EDUCATIONAL AND MEDICAL INSTITUTIONS AS PARTS OF COMMUNITY DENTAL PROGRAMMES.

(33) Schools. The centre of the preventive dental programme for children should be the public school system.

(34) Hospitals and Outpatient Departments. The centre of the curative dental programme, so far as such a programme is practicable, should be the hospitals and their outpatient departments.

(a) In communities having dental colleges, the dental clinics or infirmaries connected with these colleges also form parts of this programme.

(35) District Clinics. Local dental clinics established under public or private auspices, unattached to hospitals, or as parts of health centres, should each serve a definite area, emphasizing preventive work but supplementing both preventive and curative programmes according to the needs of their districts.

DENTAL SERVICE IN HOSPITALS AND OUTPATIENT DEPARTMENT.

(36) The hospital and outpatient department cannot be expected to provide dental service for the community as a whole, or for all the population of the area which it serves. The responsibility of the hospital and outpatient department is primarily to provide dental service for persons who are under medical care and whose dental conditions are associated with their medical problems.

(a) Under the policy indicated above (34), the dental clinic in the outpatient department of the hospital becomes the chief organized dental service for adults, supplemented by local health centres and clinics unattached to hospitals, and by the clinics or infirmaries of dental colleges.

(37) **Diagnostic Service.** Dental service is needed by the hospital and outpatient department as an element in the diagnosis of many disease conditions in general medicine or in the specialties.

(38) **Dental Care.** Every hospital and outpatient department should provide or arrange for dental service for every patient whose medical condition requires it.

(39) **Routine Dental Examinations.** Dental examinations of all patients are desirable as a part of the routine physical examination.

(40) Every general hospital should, therefore, have a dental service or department, including opportunities for oral surgery in the house and for ambulatory service through a dental clinic in the outpatient department.

(41) In such dental clinics the charging of fees covering cost of service is desirable, as indicated above (21c). In some instances, it is well to have these pay clinics held at certain periods of each week, other hours being assigned to sessions charging nominal or no fees. Under other circumstances, it may be best to have no separation between these two services, fees being remitted in whole or in part to patients unable to pay.

(a) Standards and procedures for admitting to dental clinics only such persons as are unable to pay private dental rates for the services which they need should be established, conformable with the practice of outpatient clinics in the various branches of medicine and surgery.

(42) In view of the recent development of dentistry in association with medicine and of its introduction as a service into hospitals and outpatient departments, it is desirable that standards for the organization and conduct of dental services in hospitals and clinics be prepared and promulgated. Dentists, physicians and administrators should participate in the formulation of such standards.

RELATION TO EDUCATION AND RESEARCH.

(43) Research into the conditions and causes of dental decay and into the methods of its prevention is of fundamental importance. The entire programme of dentistry may be radically changed by future discoveries of specific causes of dental decay and agents of infection. Definite provision for research is supremely important in any programme for a community large enough to support a dental institution of the first rank associated with medical and dental education.

(44) The co-operation of students of dental colleges in connection with community dental service is both a measure of public economy and an educational advantage to the future members of the profession.

(45) The teaching of dental hygienists should be an integral part of a community dental programme in any community of size.

(a) The function of the dental hygienist will require study and possibly redefinition as time goes on, particularly with regard to the part to be played by the hygienist, on the one hand, as a technical assistant to the dentist in cleansing teeth, and on the other hand, as an instructor in mouth hygiene.

(b) It is desirable that the development of dental hygienists shall not interfere with the instructive functions of the school teacher and of the school nurse. The school system cannot be expected to support a double set of health educators. Instruction in hygiene for school children should not be dealt with by a series of specialized instructors.

(46) The education of all nurses and other public health workers should include subject matter in dental hygiene.

American Dentists' Harvest

GEO. CECIL, PARIS.

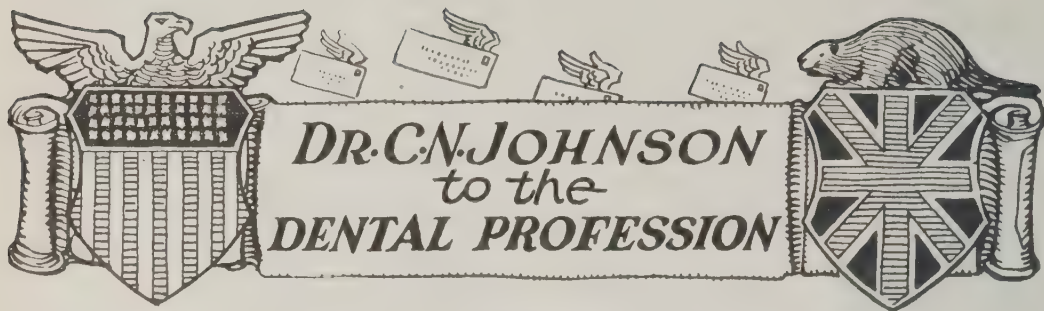


THE British Colony in Paris has long since decided that the skill of American and Canadian dentists knows no equal. Yet, there is but one Canadian dental surgeon available, and he, being well-established, is so busy that an appointment must be made a very inconvenient number of days ahead. True, he employs two Canadian assistants; but they also are too much in request to attend to a patient at a moment's notice. Perhaps room could be found for more practitioners from Canada?

Of American dentists there are a number, and their work is admirable, patients of all nationalities in cosmopolitan Paris standing by them. But the majority charge so exorbitantly that only the affluent can afford to avail themselves of such highly-paid services. Fortunately, there is one solitary exception—a young man who, having lately gone into practice, is building up a connection by charging modest fees. He works ten hours a day.

There are a number of Swiss and Russian dental surgeons, the last-named looking after the mouths of refugee compatriots, who, it is to be feared, have little money to spend on their teeth.

The French practitioners greatly resent the presence of alien dentists, looking upon them as poachers. Many Parisians, however, prefer the enterprising interlopers.



Fads

FADS are most excellent things and every man needs one—particularly men who live in large cities and are clamped down to the routine of business pressure. A fad is a safety-valve against blowing up—an insurance against going stale. Intense and long continued application to the exactions of modern business will inevitably take its toll in a shattered physical, nervous, or mental constitution, unless there is some outside compelling interest to distract the attention and switch the current of thought. Business was not always as exacting as it is to-day, and men did not apply themselves so assiduously to it. Competition was never as keen as now, and constant application never so necessary. More men are repeatedly going down under the strain, till big business is almost becoming a menace.

Men break not so much because work is hard, but because it is continuous. Most men can stand hard work and are really benefited by it, provided there are ample periods of relaxation and diversion. It is the constant thinking on one problem to the exclusion of everything else that wears out the brain, and the brain is the great barometer of our mental and physical equilibrium. There is thus the necessity of having some absorbing interest in life—some hobby—outside the regular routine of business, something that absorbs us body and soul for the time, and completely changes the current of our thought. That is why a fad is so essential. It is necessary not only for the well-being of the individual, but for the better performance of his business duties. After a bout with his pet hobby a man comes back to his daily affairs with renewed energy and interest. It gives him greater zest for his work, and more capacity to perform it.

But of course, like everything else, a fad or hobby must be taken with moderation. The most difficult thing for humanity to learn is balance, and the majority of men run to extremes. It is a wise man who acquires a fad, and a wiser one who knows how to control it after he has it. If he permits his fad to become such an obsession that it

takes him away from the legitimate performance of his business duties, it may lead to disaster. Most lines of business are more or less exacting, and will not brook too much neglect. A fad should be used as an auxiliary to life—not as the main object, and the level-headed man is the one who knows how to make a fad subservient to his needs and not to allow it to become his chief interest.

As to fads for professional men, there are too many to enumerate. Every individual must select his own—the only insistence being that he does select one. It may be golf or gardening, fishing or farming, collecting beetles, bugs or butterflies, carpenter work, painting, modeling, sculpture, photography, metal work, or it may be that delightful, absorbing and altogether refining art of music. Whatever it is, it should be studied to such perfection that it shall prove not only a satisfaction to the individual himself, but that it may give pleasure to others. Achievement of any kind is barren and fruitless when it is confined to selfish indulgence. The greatest glow we kindle in our hearts is that which comes from the light we see in the eyes of those we love. A fad which is developed merely for self gratification never proves of permanent value as a diversion—it palls after a while, and fails in the very object of its existence.

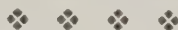
To take a friend into your workshop and show him your latest mechanical achievement; or into your studio where a painting has just been completed, or a model in clay has been made of a favorite horse or dog or child; to get out your collection which has taken years to gather, and explain the different specimens to one who is interested; to show a party around your farm and let them see the well-kept fertile fields and the blooded stock; to pick up your violin or guitar, or sit at the piano and send forth the notes that tingle in the ears of your listeners and transport them to realms other than that of earth—all of this makes you forget the carking cares of business and develops you into a bigger, broader and better man. A fad is of real service only when it contributes to the enjoyment and happiness of those about us—when it once in a while brings a smile to the faces of family and friends.

C. H. Johnson

It takes a mighty conscientious man to tell the difference between when he's tired and when he's just lazy.

Officers of Canadian Dental Organizations

Oral Health will be Pleased to Receive Additions or Corrections that Directory of Names May be Kept as Accurate as Possible.



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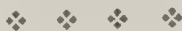
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College of Dental Surgeons, Regina, Sask.

Alberta

Dr. Leslie McIntyre, Registrar, Alberta Den-
tal Association, Edmonton, Alta.

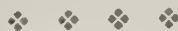
British Columbia

Dr. W. J. Lea, Registrar, College of Dental
Surgeons of B.C., Vancouver, B.C.



DIRECTORY of DENTAL MEETINGS & OFFICIAL ANNOUNCEMENTS

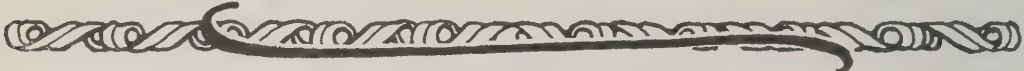
[Dental Associations are Invited to use this Department Freely for
Announcements of Meetings]



MONTREAL FALL CLINIC—Under the auspices of the Montreal Dental Club, at Montreal
Thursday, Friday and Saturday, Nov. 5th, 6th, 7th, 1925.

CANADIAN DENTAL ASSOCIATION—1926 Meeting at Halifax, N.S. Date to be set by
Executive.

Oral Health



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TORONTO, OCTOBER, 1925

No. 10

EDITORIAL

The National Progress of Dentistry in Canada



HERE are many problems of a purely Canadian character that can only be solved by the dentists of Canada working together in the closest kind of sympathetic co-operation. These problems comprise a very definite obligation of a national character resting upon the dental profession of Canada, which can be discharged only when the entire profession works together in a spirit of unity.

Unity of purpose and action does not necessarily demand uniformity. Indeed, uniformity may be an indication of slow growth or even stagnation. The recognition of special regional requirements and the fostering of proper development along provincial lines are essential to national growth. The idea of uniformity is deadening, while that of

unity is patriotic and inspiring. The patriotism of Canadians is surely strong enough and sufficiently virile to live through all local and provincial considerations, and indeed our national progress and prosperity demand it. These principles are fundamental and apply to all branches of national endeavor.

The provinces of Canada, by the Act of Confederation, control the entrance qualifications and conditions of practice of the learned professions within each province. This provision has placed the members of the professions in each province in a position of more or less independence of those in every other province. But nevertheless, while each province may feel self-contained, there are many federal problems of vital concern to Dentistry, and organized effort upon the part of the entire profession is the only means of solution and accomplishment.

Already the Canadian dental profession is organized along national lines in research through the Canadian Dental Research Foundation, and in oral hygiene work through the Canadian Dental Hygiene Council. But the development of a national dental conscience and an adequate means for effective action are required in several other directions.

A few of the national questions confronting the dental profession in the Dominion of Canada are:

- One —What part should Dentistry play in the Federal Department of Health?
- Two —What is the present status of the Canadian Army Dental Corps?
- Three—Do the dental regulations of the Department of Soldiers' Civil Re-Establishment result in satisfactory dental service for returned soldiers?
- Four —Is a Canadian Dental Registration Board feasible, and, if so, what Federal legislation should be passed to make it effective?
- Five —What dental service should be made available to the Canadian immigrant? (This problem is now under investigation by Dr. R. J. Reade, on behalf of the Canadian Dental Hygiene Council, and will be reported upon at an early date.)
- Six —What Federal grants should be made to dental health work of a national character?
- Seven—What is the present situation in regard to dental service for inmates of public institutions under Federal control?

Eight — Does the present organization of the Canadian Dental Association, holding a convention biennially, meet the national needs of Canadian Dentistry? Would it be better to constitute the C.D.A. as an administrative body, composed of official delegates from each province, and meeting annually or oftener as occasion might demand? Could not the regular convention programme be safely left to the provincial dental associations for development?

Dentistry in Canada needs unity of action through a national body appointed by the profession and empowered with authority to act and speak for the profession as a whole, that more rapid progress may be made in establishing Dentistry in its rightful place in Federal health activities and giving the people of Canada more and better dental service.

C.D.A. Meeting, Halifax, August, 1926

J. W. CLAY, VICE-PRESIDENT, CANADIAN DENTAL ASSOCIATION.



WHEN we think of the Canadian Dental Association meeting to be held in Halifax during the summer of 1926, it seems a very long way off both in time and place. Of the two factors we need only concern ourselves with one, and that is the distance. Time in perspective looks long, but a retrospective view shows us the truth. And so the summer of 1926 will before so very long be upon us.

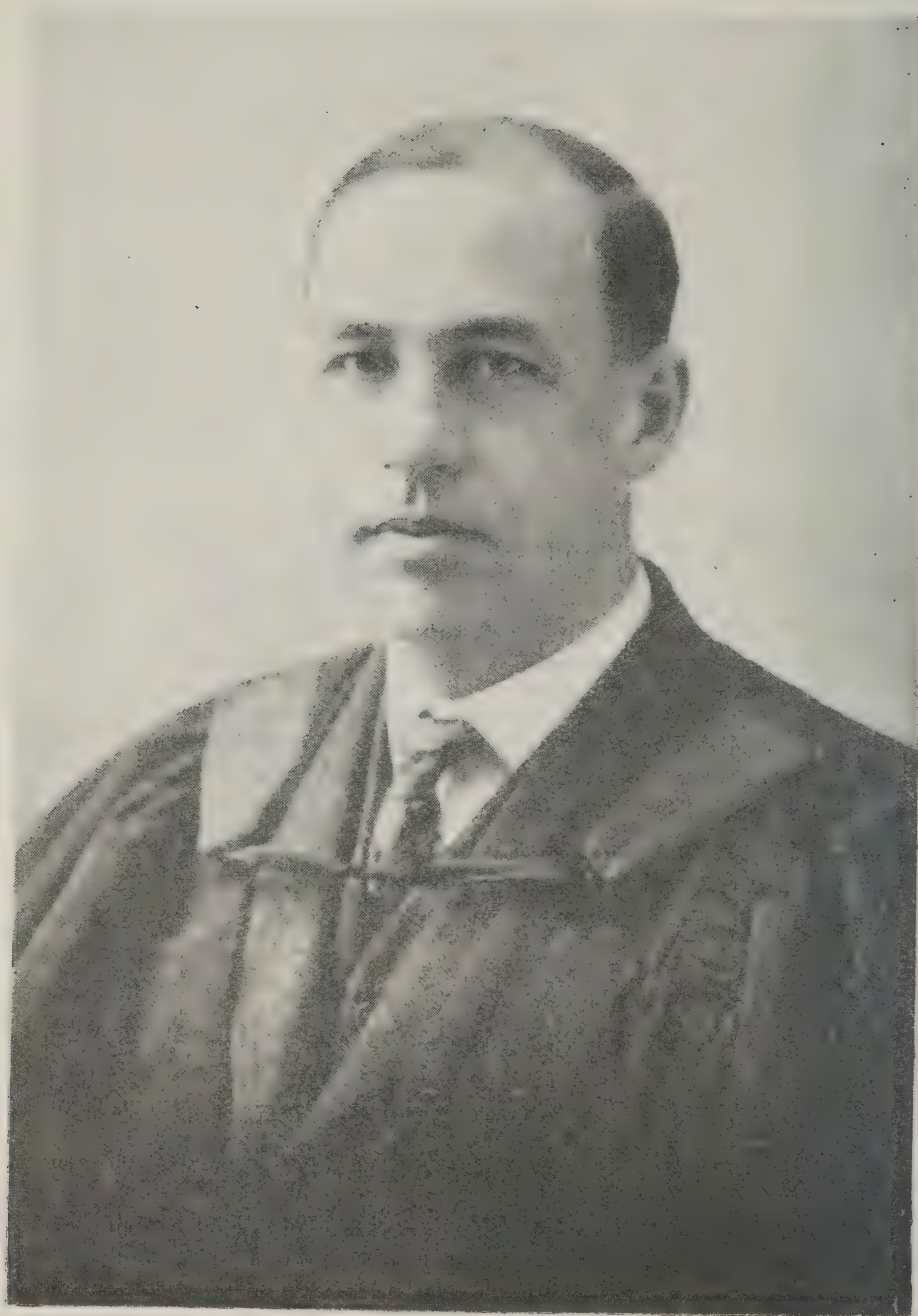
Distance, however, will be as much a problem next year as it is to-day. In fact it is this very distance which should impel as many as can do so to attend the meeting.

There is a very definite trend towards the disintegration and death of the Dominion affiliations in Dentistry, following along the same lines as the growth of sectional feeling in other matters. It is foolish to shut our eyes and say that it is not so. We who hope for a continued Dominion must work for it in the branch that is intrusted to our care, namely, organized dentistry.

Leaving out of the question the interesting journey to a part of Canada which few of us, except natives and strayed natives have seen, and the excellent programme and hospitality that will await us, let all who can, begin to lay plans to attend this meeting to take our share in the work of uniting Dentistry in Canada.

NATURE never did betray the heart that loved her; 'tis her privilege through all the years of this life to lead from joy to joy ; for she can so inform the mind that is within us, so impress with quietness and beauty, and so feed with lofty thoughts, that neither evil tongues, rash judgments, nor the sneers of selfish men, nor greetings where no kindness is, nor all the dreary intercourse of daily life, shall e'er prevail against us, or disturb our cheerful faith, that all which we behold is full of blessings.

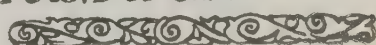
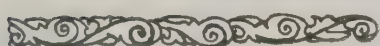
—*Wordsworth.*



J. STANLEY BAGNALL, D.D.S., HALIFAX, N.S.,
Secretary-Treasurer, Canadian Dental Association.

ORAL HEALTH

A JOURNAL THAT STANDS FOR THE OUNCE OF
PREVENTION AS WELL AS THE POUND OF CURE



Vol. 15

TORONTO, NOVEMBER, 1925

No. 11

Prosthetic Dentistry*

F. E. WARRINER, D.D.S., *Winnipeg.*



PROSTHETIC Dentistry is that part of dental science which treats of the various methods of replacing the lost organs of the mouth, in whole or in part, or the artistic and mechanical processes involved in such restoration.

Under this heading we include:

1. Removable appliances which restore lost dental organs.
2. Fixed Bridges.
3. Appliances for correcting irregularities of the teeth and jaws.
4. Appliances for retaining in position fractured bones of the face, etc.

The prosthetic dentist should be of an artistic temperament; should have a good eye for color, and proportion; and be an artisan capable of imitating nature in her ideals as well as less typical forms and moods. His first consideration consists in restoring as fully as possible the function of mastication. His second consideration is beauty. Esthetics, if it does not take precedence of utility, is certainly co-equal with it, for when the first animal wants are satisfied the esthetic desires seek their gratification.

UTILITY.

Under the heading of Utility the prosthodontist must understand the anatomy of that portion of the head which must carry his artificial retoration. He must know the muscles, their attachments and their movements. He must know the blood and nerve supply, so that normal function of all these will *not* be interfered with.

He must understand the movements of the condyle in order to create or restore anatomical articulation.

* Read before the Dental Convention at Winnipeg, 1925.

BEAUTY (ESTHETICS).

One of the early writers in physiognomy says in speaking of the mouth—"I conjure our painters and artists with all my might to study this the most precious of all our organs; in all its varieties, in all its proportions and in all its harmonies."

Another writer says: "If the eyes are the most expressive part of the face, the mouth is the most sympathetic."

When the mouth is closed the lips are the noticeable points of interest, but in laughing or speaking the teeth become the most noticeable features, because they are brought more or less prominently into view.

The most beautiful teeth are not enough to make one beautiful, but ugly teeth would spoil the beauty of the Venus de Milo herself.

It has been said that *Esthetics* in denture work stamps the prosthodontist with the mark of an artist, and he takes his place with the painter of portraits, the poet and the sculptor.

Esthetic appreciation is found in some degree in every individual, and every dentist has some sense of the harmony that may be found in teeth and complexion and facial forms.

The prosthetist differs from some other artists in that his ideas of the beautiful must be modified and restricted to conform to his patient's sense of beauty.

The prosthetist must find his tastes and selections and combinations agreeable to the people whom he serves. Not only is this necessary, but he must bear in mind that a new product of his skill will probably be required for his patient after a period of years.

The prosthetist can educate his patients to recognize as esthetic, dentures which approximate the natural teeth of men and women which are universally acknowledged as pleasing to behold.

The best dressed individual is the one who at first does not attract attention. There is nothing showy about him. His style is moderate. His clothes are seasonable. The quality is of the best. So should this be the thought in choosing the teeth for your patient.

Always use the best procurable teeth and materials.

Select teeth that harmonize with shape of face.

The *Trubyte* manufacturers have provided a chart of the forms comprised in their system of artificial teeth and their relationship to forms of the human face. They have chosen three ideal types of face-form, viz:

The tapering, the square, and the ovoid, as basal types. The tapering has five modifications, the square four, the ovoid three.

If the dentist thoroughly acquaints himself with these three ideal types, and will perfect himself in the selection of the form of tooth for

each of these, he will be training himself according to thoroughly acceptable principles of development.

Wherever possible study the appearance of natural teeth, note size, color, peculiarities, etc. Then carry out their good points in setting up your artificial teeth.

Artificial teeth must of necessity be longer than the natural teeth, until such a time as the manufacturers produce a vulcanite or some other material approximating the color of natural gums.

In setting up your teeth on wax base have the incisal edge show more than seems most pleasing to either operator or patient, because after dentures have been worn a few weeks the lips will lengthen perceptibly.

A better result will often be obtained by selecting teeth from several sets, rather than one set as carded by the makers. Bicuspid are usually too short and too light in color for the centrals and laterals. The posteriors are invariably too short.

THE RELATIONSHIP OF COLOR OF TEETH TO ESTHETIC EFFECT.

In partial denture work one must harmonize the shade of an artificial tooth with that of the natural.

If one is good at matching colors this is comparatively easy, provided the shades of the natural teeth can be found among the shades produced by the manufacturers.

By revolving the 20th Century shade guide close to the natural teeth one soon eliminates all but say two or three shades. Remove these shades from the guide, wet them and hold two of them close to natural teeth, inspect them from various angles. Often you will save yourself future criticism if you will obtain the co-operation of the patient in the final choosing. There is a psychological effect in this that should not be overlooked. So again by the system of elimination you will obtain the nearest shade made.

If the natural teeth should be flatter, a shade darker and duller than the chosen teeth, you can improve the appearance by grinding and repolishing. I often do this to all the teeth in full denture work.

The various attempts made to classify patients in order to simplify the selections of teeth with regard to color or shade, etc., are so complicated that their helpfulness is very limited.

They are either blondes or brunettes. If typical, the selection is easy. When they are hard to classify the selection of a suitable color of tooth will be complicated by a similar necessity for modification of color. In fair complexion people a tinge of orange will usually be most harmonious. The coloring of the teeth should harmonize with the facial hue. The "Facial Hue" includes shades of skin, hair, and color of eyes. If one has taken care when taking the bite to secure the cor-

rect distance between the upper and lower ridge, having padded the cheeks and lips as required, the setting up of the teeth has been greatly simplified.

Photos of patients taken before their teeth were extracted, showing their own natural teeth, are of great assistance in producing natural results. A photo showing the profile is of great assistance in obtaining the proper bite..

In arranging as well as in selecting the teeth it cannot be stressed too strongly that some one or more members of the patient's family should be present. The one or ones most interested will be the most helpful. The real helpfulness will be most manifest when the patient returns home wearing the denture.

They will understand the reasons for using teeth slightly longer than looks best. They will understand the reason for the strained appearances. They will assist you by championing the appearance of the patient whenever others comment adversely.

We well know that judgment must be reserved for a week or more, to allow the muscles to relax and for the patient to wear the new reconstruction as if it "belonged."

The arrangement of the teeth is as important as the selection of teeth for color and correct size in producing the desired effect.

A perfect set-up of artificial teeth is most harmonious and beautiful, but their very perfection invites a critical observation. This must be avoided. The set-up must be made to look natural,—must not attract special attention.

If the patient all through life has had what is known as buck teeth, then the artificial teeth must be prominent; otherwise you will have a complete change in profile, a wrinkling of the lips, etc. If the change was a great improvement, all well and good, but invariably your patient looks twenty years older.

This aging of our patients in appearance has been one of the greatest factors for their keeping treated, diseased, unhealthy teeth that otherwise would be extracted and this fault lies at our door,—because the dentist can with the co-operation of his patients maintain the natural appearance.

Permit me to diverge from my subject to outline a simple method by which a patient can have all the teeth extracted, a restoration inserted, without any change being made in appearance and with a minimum amount of inconvenience.

An impression is first taken in compound. Posterior teeth are then extracted and inserted into compound. A model is made. Gums allowed to heal. A partial denture is then made, duplicating as nearly as possible the natural teeth. When worn in comfort, a further bite

and impression is taken with the denture in position. The impression removes the partial denture and gives you its relation to the remaining teeth. An extra impression of remaining teeth will be found very helpful to be used as a guide. On the model obtained from this later impression mark position of fillings, various shades and peculiarities of teeth.

The plaster teeth can now be cut off the first model one at a time; cut well into the root socket, using teeth long enough to allow for same and trimming same to root form. Now all characteristic markings of the teeth due to age must be supplied by the operator, since the teeth as manufactured are designed for patients of younger years than those who ordinarily require artificial dentures.

Abrasions and erosions may be imitated, fillings inserted, etc. It is often wise, whether the patients desire gold fillings or not, to suggest same, as gold fillings do much to enhance the naturalness of artificial teeth, keeping in mind that a mere *suggestion* of gold is much more effective than an obvious effort to display a large amount.

Spacing, lapping or omitting teeth may improve esthetic effect. Spacing *and* lapping of teeth in same mouth is not a natural characteristic.

The prosthetist would do well to study the harmony of natural dentures with face-form, complexion of friends and acquaintances, noting particularly the most pleasing features.

Charity patients may be employed for purposes of trial and experiment.

A collection of photos may be very helpful. Movie stars show teeth.

Remember particularly that teeth should suit the patient's age; we cannot displace the beauty specialist, but we can do a lot to overcome the fear and dread of having to wear artificial restorations as prevalent to-day.

In summing up the esthetic side of denture construction, let me urge that you leave nothing undone that will improve your patient's appearance.

Remember, if dentures are not inserted for three months after extracting, that patient will never look the same. His or her friends will avoid as long as possible going through the same ordeal.

Improvements can be made from time to time; impress this on your patients, and arrange follow-up appointments, say from six months to a year. A nominal fee can be charged for milling in of the teeth, checking up and polishing. (A sure business getter.)

Business is any gainful occupation of which profit is the goal and in which there is a risk of loss. Business must satisfy human wants;

your profit is earned through your ability to please others. A business man must study the wants of his customers, but, more important, he must be able to supply these wants.

The professions are not classed as business, for the reason that profit-making is not their primary aim. A professional man finds his reward not merely in the money he earns, but in his love of the work, in its dignity and importance, in his personal independence, in the distinction he achieves because of his skill and intelligence, and in the respect he commands from his colleagues of the same profession.

For a dentist to merely be able to pull teeth, make plates and fill teeth, is little more than being a mechanic. He must know as much or more than the physician about the various diseases that attack the teeth and the gums, and must be able to treat them scientifically, to claim rank among the professions.

The professions differ from business occupations in that they have definite codes of ethics which prescribe and limit their action. As is well known, it is unethical for a professional man to advertise, for the only thing he can advertise is his own ability.

True, he may send out cards announcing that he has opened an office, he can join clubs, societies, but he must beware of any conduct that seems to have an advertising aim.

Members of any profession, however, are wise if they make a study of business problems, acquaint themselves with business principles and customs.

The problems of a profession can be correctly solved only by a man who has had thorough training in business sciences.

Psychology should be added to this, although dental colleges do not appear to be alive to the importance of this science.

The well trained professional man should be disciplined in the science of pure logic of jurisprudence, in ethics, in the evolution of law, and in the theories that explain and justify legal doctrines.

Since business is essentially co-operative in its nature, a man's mind being constantly brought into contact with the minds of others, a business man unconsciously becomes a psychologist, but not always a good one.

What is psychology? We know that the problem of denture construction is a problem of mechanics. We know that the problem of denture retention is fundamentally a problem of physics. We know we can have both of these problems solved, and yet—our work be a failure. Why? Because the patient's adaptation to the denture is a problem of mental process, and this has been overlooked.

The science that deals with these mental processes is psychology.

The prosthetist, before he can successfully begin work, must have

a general idea of his patients' mental attitude toward the finished product, their likes and dislikes, fears and confidences, ambitions and aspirations.

Above all, he must have the patient's confidence. Fifty per cent. of the final victory goes to the patients who wear the dentures.

The reputation and honesty of the prosthetist should be the only guarantee of satisfaction. To use the old phrase—"Satisfaction guaranteed or your money refunded", when applied to dentures, is not in the best interest of either party, as there should be *no alternative* in the patient's mind. You both *know* they will be satisfactory. Other patients have been satisfied. You insist on satisfying this one. Until he or she is satisfied your work is not completed.

When sufficient time has elapsed to produce satisfaction, yet the combined efforts of patient and dentist have not produced the desired result, the whole amount of fee should be cheerfully returned. The result will be a happy, surprised patient—a booster for you among his or her friends. An advertisement of this kind will have far-reaching efforts, and is very effective in increasing a desirable clientele.

You may say you have no fee to return, as you don't collect until patient is satisfied. The psychological value of payment in full when dentures are inserted is so great that one should not deviate from it.

Patients will wear their own dentures, and make vigorous efforts to become accustomed to them, when they would have little interest in those belonging to someone else. The patient may not think of this, nevertheless he or she is being unconsciously influenced.

I recall in my experience a case where a fee was not collected when dentures were inserted; for over six months I pressed for payment. The husband of my patient would insist that the teeth were not satisfactory. The wife had little or nothing to say, *Mirabile dictu*. A happy thought struck me one day when I met friend husband, and I suggested, in as friendly a way as I could command, that every time he sat opposite his better-half at meal time he should say to himself. "There's my darling wife eating with Dr. Warriner's teeth." Result: Payment in full inside of one week. (Beats the collection agency 40 ways.)

Had the fee been collected at the time when the dentures were inserted, a considerable amount of time and money would have been saved, to say nothing of the peace of mind of patient and dentist.

It may not always be practical to collect in full, especially when patients have been having other work done and where the accounts of other members of the same family are being paid from the same source.

In these cases, as well as in all other cases, insist on having a clear understanding regarding fee before any work is begun. Insist on having a sufficient deposit, retaining fee, or whatever you wish to call it, paid

when you begin the work, to cover all mechanical work, all supplies necessary and estimated overhead cost for time involved in doing the work. If this is not done, you are making a banker of yourself, but a very poor banker. You are loaning money without interest, for you must pay the mechanic, you must pay the supply man, the landlord, your assistant, etc. You require money to live.

The statement is often made: "I wasn't busy, so I took the chance." All right, take a chance on your time if necessary, but don't lend your money out without security and without interest. An explanation of this sort is always sufficient for the desirable patient who is not in the habit of paying until the completion of work.

The vital point is that in denture work the dentures should belong to the patient when he or she begins to wear them. Urge upon your patients the necessity for their reserving judgment until you are satisfied in your own mind that you have obtained the objective; in short, the best that can be produced with the foundation on which you have had to work.

If the patient has been wearing dentures, these should be left with the dentist as soon as new ones are inserted, for then the patient is obliged to make an honest effort to wear new ones. The tissues adapt themselves to the new dentures sooner if they alone are worn.

The care of the dentures is a very important factor in maintaining success.

Verbal instruction is soon forgotten. It is not wise to confuse your patients with too many instructions at the outset—far better to give them one or two instructions when the denture is first completed. Tell them to follow these instructions closely until your next appointment, which should be within two or three days. There are certain methods which can be followed for inspiring confidence.

A sprinkle of Corega or similar products on the dentures will contribute to success at this stage.

Never become impatient with your patient.

Compare artificial dentures to the wearing of artificial limbs. No one expects a man to walk and run with an artificial leg the moment he receives same. Why should any person expect to talk and eat in comfort with artificial teeth on the day of insertion?

Your own confidence of success will be the greatest inspiration the patient can receive. If this is lacking, expect failure. Ask yourself why you should lack confidence. Take a mental inventory of yourself. Is it because you lack decision or self-reliance?

Success is the result of right mental attitude. Too many are afraid they are not going to make the thing go. They are always looking on the dark side of everything. They have the faculty of seeing more

difficulties than others. The easier it is for a man to see obstacles, the harder it is to see success. People are more apt to see an obstacle than the way around or through it.

It takes energy and investigation to get through. It pays to *study*. It pays to *know*. It pays to *do*.

Success comes from within. Let a man become convinced that he can do a thing, and the idea arouses him to the greatest endeavor. Confidence begets confidence and success begets success.

You must put your whole heart into your work. Half-hearted work makes only half a success. The man who only half tries will accomplish something, but not enough. Those half-hearted men always blame their business if they do not succeed. A man's success is in his mind. Therefore, cultivate a cheerful, hopeful, confident mental attitude. It's the natural way to live.

There are many and varied methods for taking impressions, making bites, trial plates, etc. It is not my intention to deal with any special technique, but to point out advantages for applying different techniques.

Let me illustrate: Mr. A. desires a full upper restoration. He has worn a denture before, has a fairly high arch and a heavy, hard, long ridge. A good old-fashioned plaster impression will give you a result that cannot be surpassed. Time involved, say, 15 minutes. The Green method, or Green-Supplee method, or Green-Supplee-Cummer method, will require upward of one hour, with no better, if as good, a result.

A similar mouth when you desire to pad the cheeks. Use Hall's method of adding plaster until desired result is obtained.

Where the anterior superior ridge is soft and flabby, due to absorption, the Green-Supplee-Cummer method yields the best result.

Neel's method of post-damming is a great aid in retention.

If you haven't a tray that conforms with the mouth, take a compound impression and have a vulcanite tray made by your mechanic.

The saving of time is a big factor in the business side of denture prosthesis. But time should never be saved at the expense of quality.

To cultivate a desire among your patients for better work—compare plaster to artificial stone; compare a mush bite to bite models; compare an ordinary hinge articulator to a Gysi or Hanau.

The mechanical side will appeal especially to men. Compare the set-up of teeth by a mechanic to the set-up by the dentist; the study of their photo, for obtaining bites, etc., to the "absent treatment"; the study of shape of face for choosing size and shape of teeth; the study of complexion, hair and eyes, for choosing of color. This side, the esthetic side, appeals especially to the ladies.

To the person who cannot see any advantage in possessing a Packard car over a Ford, because the Ford gets them there and a Packard costs more money, an explanation as just given is wasted energy.

In building up a business, whether as a prosthodontist or as a general practitioner, the principles are the same. It pays to advertise, but you must produce the goods. You can advertise by pleasing patient A. He or she may send you other patients, providing their influence amounts to anything. This is a slow but sure method. Another method which is quicker and is two-fold is through public service attracting to you groups of individuals who otherwise you would never meet. Your unselfishness in giving of your time and your money makes a good impression and a wonderful appeal.

How is it that the average student at college who won honors in the class standing is never heard of again, while, on the other hand, the fellow who was always on some executive, perhaps an athlete, the hustler but far from the best student, is invariably a success? One reason is that our star students are content to rest on their laurels and wait for business. On the other hand, the hustler at college just naturally fits in with the activity of the town or city in which he establishes himself. The contact with other professional and business men is an inspiration to him. He consciously or unconsciously perks up in his own business. It is human nature to wish to be thought well of by our friends, neighbors and associates. This stimulates study in one's chosen profession—a desire for knowledge.

There is practically no limit to what a man can accomplish in his business if he only will. Here are the things he must do: *Work, study, read, think, observe*—and then do more *work*.

He must remember that the strength of the mind and will are dependent upon the health of the body. A business man who thinks he can neglect his physical health, and yet be as shrewd, far-seeing and resolute as ever, is the victim of a serious delusion. A perfectly healthy man finds his way out of difficulties that would floor him if he were sick or only half well. The man who is not in good physical condition lacks imagination; he lacks grit and resolution to carry a new idea into effect.

Health must be earned by the sweat of a man's brow. Many forms of play exercise the muscles, make us perspire and breathe deeply of fresh air, and in that way are beneficial to health; but the special value of play lies in the effect it has upon the mind and those organs of which we are normally unconscious, such as the ductless glands, the liver, the stomach and the heart.

It is certainly important for a man to get the right mental attitude not only toward his own business, but toward the world in general.

Let him convince himself that this is a good world, that living in it is worth while, that he is going to enjoy it as much as possible, and that he is going to help others enjoy it.

Office management is a big factor in making and keeping a practice.

The same principles prevail in all lines of our profession. These principles should be printed and regularly read by us and our assistants to keep us from continually slipping or to assist us back after we have slipped.

First impressions are very lasting. Therefore, see that the entrance to your office is at least clean and inviting. If it is not and cannot be made so, get another office. Next, your waiting room should be pleasing and restful. If you lack taste or are not sure of this point, engage an expert to help you.

Your own appearance should be immaculate. Your white coat should *be white*. The buttons should all be in their proper place and buttoned properly. Your trousers should at least have the impression of being recently pressed; your boots polished; your hair, if you have any, neatly trimmed and combed; your hands clean and finger nails manicured.

Now approach your patient in a confident, courteous manner. Remember that every patient who enters your office is an invited guest, and should be so treated whether they come for service or not. Self confidence is not conceit. Conceit is an enemy to success; it rests not upon knowledge, but upon vanity. The conceited man is not trusted. The self-confident man may be very modest and claim little for himself. He is satisfied to show his power by *doing* things.

Courtesy is the regard you show for the feeling of others. Courtesy demands that you be eager to save the other fellow from disagreeable sensations and emotions; that you should not take advantage of his embarrassment, but should seek to make him feel at ease; that the tone of your voice should be pleasant and betray no irritation; that you should not too vigorously urge the patient to buy something for which he or she does not seem inclined. Cultivate cheerfulness, good manners, correct speech, cleanliness and a good personal appearance.

Remember, a drop of honey sometimes is all right. A bucketful is sickening. Sugar catches more flies than vinegar.

In your dealings with your patients you will find *tact* a useful trait. Tact secures its end without leaving any sting—never hurts anyone. It is a product of brains and sensibility. A stupid man cannot be tactful, for he will do or say the wrong thing and hurt people's feelings without intending to. Tact is the unspoken portion of what you think. If you are a tactful man, you will bring the other fellow

around to the desired conclusion so skilfully that he will think the idea his own.

When Benjamin Franklin was mayor of Philadelphia he wanted the first fire engine painted red, but he had many enemies who were jealous of his growing influence in the town, so when his advice was asked as to color he said: "Anything but red. I hate that color." The engine was promptly painted red.

In a well ordered practice the clock is the tyrant. Things must be done on time; engagements must be kept to the minute; instructions must be carried out, not at any old time, but *now*.

Any machine in a factory which now and then refuses to go, which cannot be depended upon, is soon scrapped. The dentist who continually keeps his patients waiting will soon lose the cream of his practice.

Just a word on personal efficiency. The highest degree of efficiency is obtained when a given amount of energy is so wisely directed that a task is completed in the least possible time. We should, therefore, study ourselves in an impersonal way and endeavor to find out what we are capable of doing. Are we getting the most out of our efforts? Do we waste time talking? Do we waste time going back and forth to our laboratories? Can we shorten our technique? Do we first plan our work and then work our plan? By planning your work first you have an objective in sight. Otherwise you are like a ship without a rudder. Your efficiency is zero. You may be very busy and active, but your activity is like a romping dog—more or less useless because aimless. In other words, a man desiring to be *efficient* must be constantly seeking to make his head save his heels.

There is a story of an Irish maid who answered a general housework advertisement, and when asked what wages she wished, replied: "That depends, mum; five dollars if I have to think, three dollars if I don't." This may explain some of our fellow practitioners' ability to advertise cheap work.

In the case of big enterprise the necessity for thinking and planning is evident. It is in the small affairs of business, in the daily routine, that men get into a rut and jog along as if no further thinking and planning could be of any use. Efficiency requires a mind alert, always on the lookout for better ways of doing even small things.

Some think it gives a good impression to have a waiting room full of patients, shows them to be in great demand and, therefore, is a practice-builder. On the contrary, it shows lack of system, lack of ability to size up their work, and the only persons being kidded into thinking they have a wonderful practice are themselves.

It is just as important to be on hand for your sixth or seventh patient as it is for your first. If you find yourself getting behind, and yet find

it necessary to continue work, have your assistant cancel one of your later appointments in order that you may catch up.

A man who has learned the best way of doing a thing, who thinks before and while he acts, is not a loud-voiced, bustling individual. He will have such command of himself and such confidence in his ability to do the right thing that his tasks will be done easily and without apparent effort.

Poise is an exceedingly important trait. It means perfection of balance, the harmonious adjustment of all the faculties. The highest degree of efficiency is impossible without it. Without poise a man may blunder through hasty judgment. He may lose his temper and be unfitted for hours to carry on his work. The man of perfect poise does not worry over non-essentials; petty annoyances don't unbalance him. He remains courteous, even-tempered.

The man who puts off until to-morrow what ought to be done to-day is killing his practice. Procrastination kills efficiency. It is the thief of time.

ACCOUNTS.

The time to make arrangements re. payment of fees is before you begin your work. Insist on giving an estimate. Then if there is any question the patients wish to ask re. payment, materials, etc., it will be found to be much easier and more satisfactory to explain at that time.

The business world to-day recognizes the value of employing scientific methods in the credit department of the business.

If we, as dentists, would spend a little more time in the study and application of this business end of our profession we would be a lot happier. Our noses would be a little above the grind-stone; the wolf would not be so close to our door, and prosperity's corner would come closer.

Patients who keep their accounts paid up feel a certain satisfaction in returning. If they lag there is an irresistible temptation to go elsewhere; so it is not always so much a matter of getting the money as of keeping your patient's conscience clear.

Having made all arrangements re. payment of account when estimate was given, see that these arrangements are lived up to. Teach the debtor that you keep your collection promises. Organize your credit and collections. Line up the date you make with delinquents.

Make the man whose account is in your collection file feel that his card moves up a notch each day—that his name is on your desk pad at the proper date for your personal follow-up.

Collect by plan and schedule. Don't add and carry losses.

Keep down the burden. When first the account lags find the

trouble. If it's your mistake, make it right. If patient is in trouble financially, assist him. You can get your money and his friendship by quick action. If he is trying to beat you, use the whip. Make him pay. Make yourself familiar with collection laws. Learn how far you can go, what help you can enlist, when and where the final steps to force collections. Know the road. Hold the whip. Then set the pace and train your debtors to keep it.

In closing, permit me to give you this poem on *Thinking*:

THINKING.

If you think you are beaten, you are;
If you think you dare not, you don't;
If you'd like to win, but you think you can't,
It's almost a cinch you won't.

If you think you'll lose, you're lost;
For out of the world we find
Success begins with a fellow's will—
It's all in the state of mind.

If you think you're outclassed, you are;
You've got to think high to rise.
You've got to be sure of yourself before
You can ever win a prize.

Life's battles don't always go
To the faster or stronger man;
But soon or late the man who wins
Is the man who *thinks* he can.

314 Somerset Building.

Old Ways or the New

BECAUSE a thing has been done a certain way for a hundred or a thousand years does not mean that it is necessarily the right way.

Vessels had been driven by wind power since the days of the Phoenicians, and even after steam was applied to navigation there were hundreds of ship owners who insisted on clinging to the old-fashioned sails.

But the world is moving along and the man who does not keep up with it might as well quit.

Examine your own methods of work. Compare them with other methods, and discard them if the others are better.—*Elmira Telegram*.

Action Against Dentist Dismissed



HIS is a case which was recently tried before His Honor Judge Wismer, Acting Judge of the County Court at Toronto. The plaintiff, Ethel McCann, claimed that she engaged Dr. E. W. Paul, the well known dental surgeon in Toronto, to extract a wisdom tooth, and to give all necessary treatment after the extraction thereof. Her complaint was that the doctor, in extracting the tooth, left a portion of the root in the jaw, and did not make known this fact to her, and that a few years afterwards, as a result of the defendant failing to remove the entire tooth, her jaw became infected from the portion of the tooth not removed, and she was put to considerable pain, suffering and expense as a result thereof. Below is a copy of the Judge's reasons for his judgment, dismissing the plaintiff's action with costs. Hughes & Agar appeared for Dr. Paul, and the plaintiff was represented by Frank Regan.

WISMER, J.: The plaintiff is a married woman residing in the City of Toronto, and the defendant is a dental surgeon residing and carrying on his practice in the same place. The plaintiff alleges that in September, 1921, she went to the defendant's office and requested the defendant to extract two teeth for her, and that in the operation a root of one tooth was left and not taken out and that subsequently, in 1924, this root caused serious trouble, which necessitated her going to the hospital and having the services of a physician and dental surgeon for the extraction of this root and treatment for the infected condition, causing considerable pain, expense, and loss of time. The defendant does not admit the allegation and says he has no recollection of the operation and alleges that if he did extract the tooth he did so in the most approved manner.

The plaintiff states that there were two teeth extracted by the defendant in September, 1921, one being a tooth with a gold crown on it and the other the left lower wisdom tooth. It was the wisdom tooth that she alleged caused the trouble. On the evidence I should have to find that in September, 1921, the defendant did extract the two teeth described. The plaintiff's evidence was to the effect that she had at different times teeth extracted by different dentists, including the defendant, and while at the trial she was quite positive that the root that gave her the trouble belonged to the said wisdom tooth, her examination for discovery indicated a great many contradictions and inconsistencies as to the different teeth extracted by the different dentists, and while she contended that the root complained of was that of the wisdom tooth, Dr. Rutherford, who finally extracted the root, would not say it belonged to what is known as the wisdom tooth, and none of the experts called could say from an examination of the radiograph taken for Dr. Rutherford that it was the wisdom tooth, and one expert, Dr. Webster, was inclined to the opinion from his examination of the radiograph, that it might be another tooth known as the second inferior molar.

The plaintiff's counsel based her case entirely upon the law of contract and very emphatically contended that he was entitled to recover for breach of contract, the contract being the dentist's agreement to extract the tooth, and the breach being the leaving in the jaw a part of the root of the tooth. The plaintiff's statement of claim is so framed, and her counsel's argument was entirely and solely for damages for breach of contract and he went so far as to say that the law of malpractice, as it is known in cases against medical men, did not apply to dentists. I presume one reason for this might be that if his action rested entirely on the law as to malpractice the plaintiff's claim might be barred by the statute of limitations.

I think, therefore, I should deal with the case entirely as a matter of contract as contended for by the plaintiff. In September, 1921, the plaintiff went to the dentist's office and said she wanted two teeth extracted, one being the wisdom tooth on the lower left hand side. The defendant asked to look at the teeth, said very well, and proceeded to extract the teeth, the patient being put under an anæsthetic for the purpose. The teeth were extracted and it is alleged that part of the root of the wisdom tooth was left in and in December, 1924, it gave her the trouble above described. A radiograph was produced at the trial which was taken upon the instructions of Dr. Rutherford in December, 1924, and after which he extracted a root of a tooth that had been left. This root was very deep-seated and deeply imbedded in the jaw and in the opinion of the expert witnesses for the defendant there would be danger to the patient in removing that at the time the tooth was taken out in September, 1921, and that it was very frequently the case with an inferior molar and particularly the wisdom tooth that a root might be broken in the operation and that the best approved practice was under such circumstances and conditions that the root should be left in until such time as it might show signs of giving trouble. The plaintiff's counsel argued that it made no difference what the best practice in such cases was nor that it might be a serious and dangerous thing to take out such a root under such conditions at that time and that the dentist had contracted to take out the whole tooth and that he was bound by his contract to do so, no matter what injury it might cause the patient. This does not appear to me to be a reasonable proposition. I am of the opinion that the contract entered into by the dentist was that he would use his best skill and judgment in extracting the tooth according to the best approved practice in the circumstances, having regard to the welfare of his patient. I have not been convinced beyond a reasonable doubt that root complained of was that of the wisdom tooth, but if it were I should find on the evidence of the experts and the x-ray photograph that the defendant in extracting that tooth in September, 1921, did use his best skill and judgment in doing so and that it was following the most approved practice to leave the root in at that time and that there was no breach of his contract in doing so. It was suggested by Dr. Rutherford that if a dentist should in extracting a tooth find that a root had been fractured and that it was not wise at the time to take it out, he should tell the patient about it and state that if it gave any trouble to come in again. Dr. Webster and Dr. Chalmers, both experts, did not agree that this was wise in all cases. The defendant said that he always did so, and that if he had extracted this tooth

there was no doubt that he did so in this case. The fact is that this root gave the patient no trouble from September, 1921, to December, 1924, and that early in December it began troubling her, but she did not go to see about it until New Year's Eve, although told by her husband to go and see a dentist about it. I am not sure that even if she had been told by the dentist at the time of extraction to go and see a dentist if it gave her any trouble she would have acted any differently, and I could not hold that not being told to do so resulted in any damage to the plaintiff.

In my opinion the law in regard to actions against medical men for negligence and malpractice is applicable to dental surgeons in cases in which they are acting as surgeons as in the case in question herein, and it struck me that the plaintiff's counsel did his best to obtain all the benefit he could from the law of negligence without departing from his deliberate statement that his action rested on a breach of contract.

The action must therefore be dismissed with costs.

September 24, 1925.

The Mission of the Canadian Dental Hygiene Council

R. J. READE, M.D., D.D.S., TORONTO.



THE prevention of disease and the alleviation of pain is the dominant note in medicine to-day. This is due to the sympathy in human nature which enables humans to imagine themselves in situations in which they see others. The more fortunate who enjoy the advantages of progressive science realize the evils they have avoided. The sympathetic, knowing the distressing conditions that either can be avoided or relieved, must of necessity, due to their nature, help others to enjoy and partake of the benefits offered by science.

This is the attitude of medicine in general. The science of medicine has made such marvellous progress that the individual cannot hope to be proficient in all its branches. Hence has arisen the necessity for a division of labor. Of the various branches of medicine, the one under consideration here is the health of the oral cavity. The science of dentistry has made such advances in the prevention of disease and the relief of pain that the humanitarian instincts of people impel them to make possible for their less favored fellow-creatures the benefits of dental science. The result of this effort, in the Province of Ontario, has been gratifying. But as yet the good work is in its infancy as regards the extent of its operations.

In Toronto and other large centres of the province just compare

the conditions now with those existing a comparatively short time ago. Needy people and their children had no place to which they could go to get relief from their suffering, to say nothing of procuring reparative services. Think of the thousands of children growing up and fighting against the handicap of diseased teeth and their accompanying disabilities. In this province the Ontario Dental Society clearly realized the responsibility placed upon the profession of dentistry. So they appointed an Oral Hygiene Committee to investigate conditions and work out a plan to place the blessings of modern dentistry within the reach of humanity in the Province of Ontario.

As we are not dealing here with the history and work of the Ontario Oral Hygiene Committee, suffice it to point out that the public schools of Toronto and other advanced centres are taking care of the school children under the supervision of the Department of Health of the city; also hospitals and other public institutions are not neglected. As a climax to the untiring efforts of the Ontario dentists, the Provincial Government has appointed a Director of Dental Services for the Province of Ontario, in the person of Dr. F. J. Conboy, whose duty it is to extend the benefits of dentistry to all parts of the province.

The foregoing facts are placed before the profession to show the happy results that have accrued to the Province of Ontario due to the united efforts of the dentists. But we must advance still further; as good citizens we must do more for our country. Besides considering the province, we must look to the needs of the Dominion. First, we began with the city, then extended our efforts to the province, and now we must ask ourselves: what are the needs of Canada?

THE CANADIAN DENTAL HYGIENE COUNCIL.

Before outlining our message to the Government, let us consider the composition of the Hygiene Council. The scope of the work under consideration, and its Dominion-wide necessity and application, demands the support and advocacy, in no uncertain manner, of those capable and far-seeing citizens who are ever ready to give of their time and their intellect to advance the material welfare of their country, as well as to mitigate the suffering of their fellow-citizens. The result is that the council is composed of dentists and the laity. The sympathy is enlisted of men and women who are above reproach, who have the approbation of their fellow-citizens, and whose single-mindedness is undoubted. The council is Dominion-wide, and must have the support of every province in Canada.

Then what is the message the Canadian Dental Hygiene Council has for the Federal Government? The question is best answered by enquiring: what are the needs of the people of Canada regarding the subject under consideration, that the Dominion Government can sup-

ply? It will scarcely need argument to show that the Government is interested in the economic welfare of the people of Canada. A citizen's ability to perform his task is dependent upon his health, his freedom from pain. The disease most common to mankind is due to neglect of the teeth. Practically none escape, except those who take advantage of the means to prevent disease of the teeth. Many have not the knowledge or information that such aid can be given as will relieve them from pain, or prevent its occurrence. Others have the knowledge, but have not the means or *opportunity* to take advantage of the help that the science of dentistry can offer. Not only is pain a cause of disability, but sickness caused by diseased teeth makes the worker useless. The time lost from work through this almost universal disease would astonish the casual thinker.

Then, apart from the economic consideration of the enquiry, there is the criminal aspect of the question, which is of the utmost importance to the Dominion Government. How is it possible for people to be good if they are constantly worried with decayed and abscessed teeth? It is not only pain that changes a character, but a general nervous irritability, due to the absorption of poisons from a pathological condition of the mouth. Can one in reason expect that a little child will be at its best in a foster home when continually harassed by aching teeth?

These two conditions, the economic and the moral, should be placed before the Government for its serious consideration. But the council must do more than present the problem—it must also give the solution.

The Federal authorities can do their share in this important work through their Department of Immigration. There are three classes of people to be dealt with, and each in a different manner. First, there are the adults and their families who come to settle in our country, to work our mines, our farms, and to take part in the general activity of the community. Second, there are the child immigrants brought over by various philanthropic societies, to be placed in foster homes. And third, there are the Dominion institutions.

There can be no objection raised to the proposition that Canada would greatly benefit, both economically and morally, if this part of its population were healthy and free from suffering because of a healthy condition of their mouths and teeth. If this is so, then the problem for solution is: how can this much-desired condition be attained?

Let us consider the immigrants of the first class, those settlers who come to make their homes in Canada, some with their families. The destination of these people is known to the Government. Some go to our cities and towns, others to farms and districts situated far from

sources of immediate dental help. In their distribution to their different destinations there is some place in each province where some of them stop for at least a day or two. Now Ontario has a Director of Dental Services to look after its own people. It is only necessary that there should be some link between the Dominion and the province, so that there could be co-operation in this service. A Director of Dental Services for the Dominion would supply the required link. The other Provincial Governments will soon have their Directors of Dental Services. In the meanwhile, the Provincial Dental Societies would without doubt heartily co-operate with the Dominion Government.

The case of the Province of Ontario will be applicable to the other provinces. Immigrants whose destination is some part of Ontario will become the charge of the province. The Dominion Government can communicate with the Director of Dental Services, Dr. F. J. Conboy, that certain bodies of people will arrive at a given place at an appointed time. Dr. Conboy will have the means at his disposal to make arrangements for immediate attention to these people and their children before they continue their journey. This method of assisting the new-comers will be of great advantage both to the province and the Dominion Government in securing more useful and contented citizens.

In like manner, but more easily, can the immigrants of the second class be served—that is, the children brought over by the philanthropic societies. The children remain a longer time at these homes, which are definitely situated. These children form a great responsibility for those who can understand love and sympathy for mankind. In the last fifteen years seventy-five thousand children, who have been separated from home and country, have come to our shores. There are ten British philanthropic agencies with distributing headquarters in Canada. All the homes are in Ontario and Quebec, except the Midlemore Home, in Nova Scotia; Dr. Crossar's farm, in New Brunswick, and a branch of the Barnardo's Home in Winnipeg. At present there is no provincial inspection of British children.

The third class, those who are in Dominion institutions, need efficient dental service in order to benefit their condition both physically and morally. There is no difficulty in dealing with these cases, as they are more or less permanently situated. Likewise there is little need of exposition to show the desirable results which accrue from a healthy condition of the mouth and teeth in those who are not inclined to view the laws of the land in the same way as the normal citizen.

The above is an indication of what might and should be done for those who come to be citizens of Canada, in order to ameliorate suffering and make a better abiding place of this our native land.

Canadian Dental Hygiene Council Report



THE annual meeting of the Council was held June 15th, 1925, 1 p.m., at the King Edward Hotel, Toronto. In the absence of the president, General S. C. Mewburn, Dr. W. C. Trotter, chairman of the executive, presided. There were present Drs. A. J. Broughton, H. G. Robb, F. J. Conboy, J. A. Bothwell, H. Clark, J. C. Devitt, I. Ante, Wallace Seccombe, R. G. McLaughlin, R. J. Reade, Arthur Day, Col. G. G. Nasmith, W. G. Spaulding, Frank Price, H. S. Thomson, H. E. Eaton, and E. A. Grant.

As the minutes of the last annual meeting had been printed in the dental journals, and copies also sent to all the members, the Secretary moved that they be taken as read. Seconded by Dr. Broughton. and carried.

Dr. Trotter presented the report of the Executive as follows:

Your Executive Committee has held many meetings since the last general meeting in November. At that time there were only seven members on the executive besides the president and vice-president of the Council; since then the following members have been added to the executive, viz.: Dr. A. W. Ellis, of Toronto; Dr. C. H. Juvet, of Ottawa; Dr. R. J. Reade, of Toronto; Dr. J. F. Morrison, of Winnipeg; Dr. G. N. Stultz, of Halifax; Dr. D. J. Ferguson, of Saskatoon; Dr. Eudore Dubeau, of Montreal; Dr. Ray Wilson, of Vancouver. This makes up the number called for by the constitution. It should be decided at this meeting as to how many should constitute a quorum in meetings of the Executive.

Our Field Officer, Dr. Harry S. Thomson, has been carrying on extensive educational and propaganda work in almost every part of Canada except the Maritime Provinces, which he expects to visit this summer. The detailed reports of his work are deposited with the secretary, but Dr. Thomson will give the meeting a brief summary of those reports.

Our aim is to assist in educating both the public and the dentists to appreciate the importance of dental health, and to co-operate with the provincial health bodies in every province.

We think there is a most important field for our work in endeavoring to organize some sort of dental service for immigrants. A discussion of this suggestion by those present to-day might be profitable.

Organizing dental services in Federal and Provincial institutions, hospitals and sanatoria also offers us a field to work in. In fact, there is no difficulty finding work to do, but to finance the work is the problem. The Executive would suggest the advisability of enlisting the aid of lady workers on the Council. We figure that to carry on

our work efficiently in the coming year we should have a revenue of approximately ten thousand dollars.

The secretary-treasurer will present the financial report.

I think you will all agree with me that the time has arrived when we must put on a well-organized, intensive collecting campaign throughout Canada to get subscriptions to aid in the work of this Council; probably the most favorable time will be October or November.

(Signed) W. CECIL TROTTER,
Chairman, Executive Committee.
June 15th, 1925.

Dr. Trotter moved the adoption of this report, seconded by Dr. Seccombe. Carried.

The next order of business was the secretary's report.

SECRETARY'S REPORT.

Before reading the financial statement, a few explanations might be in order:

First.—It only covers the short period from October 7th, 1924, when the first general meeting of the Council was held, up to April 30th, 1925, which, according to the constitution, is the end of our financial year.

Second.—As receipts have been small, it has been necessary to be economical, and this has been made possible through the kindness of the Canadian Oral Prophylactic Association in temporarily loaning Dr. H. S. Thomson to act as field secretary, without salary, until such time as our finances are placed upon a better basis; and also to the kindness of the R.C.D.S. in giving us office space without charge, and part time of one of the college stenographers at a nominal salary.

STATEMENTS OF RECEIPTS AND DISBURSEMENTS
(From October 7th, 1924, to April 30th, 1925).

RECEIPTS.

Cash in Bank, October 7th, 1924	\$1,052.80
Contributions, as per schedule below	129.00
	\$1,181.80

DISBURSEMENTS.

Travelling Expenses	\$ 802.44
Stenographic Assistance, Stationery and Postage	63.95
Sundry Expenses	5.20
	871.59
Cash on hand and in Bank, April 30th, 1925	316.21
	\$1,181.80

CONTRIBUTIONS.

Oct. 21, 1924—Dr. A. W. Ellis, Toronto, Ont.	\$ 5.00
Oct. 28, 1924—Dr. M. A. Ross Thomas, London, Ont.	3.00
Nov. 15, 1924—Dr. J. E. Gee, Fernie, B.C.	10.00
Nov. 15, 1924—Dr. H. A. Adams, Tisdale, Sask.	3.00
Dec. 10, 1924—Dental Education Committee, Winnipeg, Man.	100.00
Dec. 12, 1924—Dr. H. E. Eaton, Toronto, Ont.	5.00
Jan. 10, 1925—Dr. L. B. Nuttall, Prescott, Ont.	3.00
	\$129.00

Audited and certified correct,

THORNE, MULHOLLAND, HOWSON AND MCPHERSON,
Chartered Accountants, Auditors.

The Secretary moved the adoption of the above report. This was seconded by Dr. Box, and carried.

Dr. H. S. Thomson, Field Secretary, was then called on for his report, and spoke as follows:

Mr. Chairman:—

I wish to give you just a sort of short review of the work done by your Field Secretary during the last six months, the detailed report of which has been handed to your Secretary.

Commencing January, 1925, we entered upon a definite programme of visiting as much as possible of the Dominion, in order that we might tell the dentists for what the C.D.H.C. stands, why it has been formed, and what we hope it will accomplish. With this object in view, six of the nine provinces have been visited, the territory extending from Quebec City, in the East, to Victoria, B.C., in the West. In every city visited the local dental society spent an entire evening discussing our Council, its work and its opportunities of usefulness. Your Field Secretary outlined the constitution and explained the aims and objects of the Council. There then followed a general discussion, by which we all profited mutually. These meetings were, without exception, splendid successes; in many cities we had an attendance well up to 100 per cent., and throughout the middle west many men came considerable distances from outlying points to hear the story. Such enthusiasm as was manifest at these meetings confirms our conviction that there is a great desire for just such an organization as the C.D.H.C.

On the trip through the Provinces of Manitoba, Saskatchewan, Alberta, British Columbia, at the request of the Provincial Society Executive or Oral Hygiene Committee, a programme of educational work along oral hygiene or public dental health lines was carried out. For this purpose from two to five days were spent in every city. A programme, previously arranged by the local Oral Hygiene Committee, included addresses to school teachers, university, college and normal school students, high school, collegiate and public school pupils, women's

clubs, men's service clubs, meetings for the general public, and nurses in training, and public health nurses, boards of trade, Boy Scouts and Girl Guides.

At every one of these meetings the keenest interest was manifested, and in some cities the number of meetings was limited only by the lack of time. This interest proves that the public is thinking along lines of public dental health, and it requires only that we should disseminate what knowledge we have acquired through experience and study to soon make it necessary that every city, municipality and Provincial Government will be convinced that dental hygiene is the most important of all preventive measures. In this manner we have been able to carry the story of the Council and its usefulness to a large proportion of the people of Canada. Many letters from dentists throughout Western Canada have expressed their appreciation of the societies for the work that was done in their cities. The good such work accomplishes is most apparent to those most closely connected with it. All of the work of the C.D.H.C. is done through and at the request of the provincial and local dental societies; in fact, our object is in every way to assist these societies to carry on definite and active campaigns for oral hygiene.

Funds to carry on the work of our Council are greatly needed, and we are asking the Federal Government to assist us with a grant of \$10,000 a year for five years. To convince the Government of the need of their assuming their share of responsibility in this public dental health work, it has been necessary for your secretary to make several trips to Ottawa, to personally interview the Premier and members of the Cabinet and explain to them the justification of asking for such a grant. I think much has been accomplished, but little could have been done without the personal efforts and co-operation of our President.

I wish also to thank the dentists of Ottawa for their assistance. Many of them, at much personal inconvenience, have attended and arranged meetings and interviews which otherwise would have been impossible. Dentists all over Canada have whole-heartedly lent their assistance and have secured letters, etc., from prominent and influential citizens that have added prestige to our cause. The result of these efforts will be known in a few days.

The co-operation of other allied organizations and philanthropists, as well as financial assistance, is most necessary if our work is to go on successfully. The maintenance of a Central Bureau of Information and headquarters of our Council in Toronto is one of the most important phases of our work. Here will be collected material to assist the carrying on of the work, such as stories, pamphlets, charts, slides, films, outline lectures, and general literature on all branches of oral hygiene work.

Advice will be given as to where the material can be obtained and at what price. In this we hope to be able to assist the dentist in creating a desire in his community for public dental health work which will eventually make it necessary that every province in the Dominion shall follow the example recently set by the Provincial Government of Ontario, by having on its Department of Health a director of dental services.

Mere knowledge in itself will do nothing; we must have knowledge followed by practice. It must create in the individual a desire to know and act on his knowledge. It must not only be brought to the few, but time after time the story must be told to the many, so that it will filter down through every section of society till all have awakened to the necessity of concerted action, a sense of communal responsibility.

And at first to a few of us is given the responsibility of carrying on the propaganda of this knowledge. This sense of responsibility for extension of the knowledge of oral hygiene should be awakened first in the dentist, then the physician, outstanding public-spirited laymen, educationists, public service workers, and on down to every man, woman and child in our country until, as the result of the vision of the individual or of the few, the world shall be made better because of our endeavor.

This is the aim of the Canadian Dental Hygiene Council.

(Signed) HARRY S. THOMSON, D.M.D.,
Field Secretary, C.D.H.C.

The next order of business was the election of officers.

It was moved by Dr. H. Clark, seconded by Dr. A. J. Broughton, that the present officers be re-elected. Carried.

Executive Committee.—It was moved by Dr. Spaulding, seconded by Dr. McLaughlin, that the present Executive be re-elected. At this stage Dr. Conboy asked that his name be dropped from the Executive, owing to his heavy duties, and suggested that a layman be added in his place, such as Col. Nasmith. The mover and seconder being agreeable, Col. Nasmith's name was substituted for Dr. Conboy. Col. Nasmith, after some demur, consented to accept, and the motion was carried.

Auditors.—It was moved by Dr. Fisk, and seconded by Dr. Ante, that the present auditors be reappointed. Carried.

As the Executive Council has representatives from all over Canada, and it would be impossible to expect them to attend all Executive meetings, Dr. Conboy moved that six members constitute a quorum for Executive meetings. Seconded by Dr. Devitt. Carried.

Discussion of Report of Chairman of Executive.—This was opened by Dr. Seccombe. Dr. R. J. Reade suggested a plan for providing dental services for immigrants coming into Canada, and thought it would be a good thing for the Council to co-operate with the Government in such work. Dr. Nasmith, from his experience in the port work of the Canadian Red Cross, thought this would be a very valuable service. Dr. F. Price spoke of the need for dental treatment in Barnardo Homes. Dr. McLaughlin suggested that, for a beginning, educational material as to care of the mouth and teeth could be given to immigrants at port of entry.

Dr. Seccombe moved that the following resolution be passed: "That whereas the Dominion Government has made grants to a number of health organizations, the Canadian Dental Hygiene Council, now in annual meeting in Toronto, this fifteenth day of June, 1925, unanimously urge the members of the Dominion Cabinet to comply with the modest request of our Council for a grant of ten thousand dollars," and that a copy of this resolution be sent to each of the Cabinet Ministers without delay.

This was seconded by Col. Nasmith, and carried.

There being no further business, the meeting was adjourned.

EDMUND A. GRANT,
Sec.-Treas., Canadian Dental Hygiene Council.

Chicago Dental Society Annual Clinic and Meeting



THE midwinter clinic and meeting of the Chicago Dental Society will be held at the Drake, January 27, 28 and 29, 1926. A splendid programme is in preparation, which will surpass any of the previous efforts of the society. All members of the American Dental Association are cordially invited and are most welcome. Information may be secured from any of the following chairmen:

Otto U. King, 58 E. Washington Street, Programme Committee.

O. J. Olafsson, 1307 N. California Avenue, Clinic Committee.

James W. Ford, 25 E. Washington Street, Exhibit Committee.

Hotel reservations should be made direct with the particular hostelry you prefer. Certainly the Drake would be most convenient.

For general information address the undersigned:

HUGO G. FISHER, *Secretary,*
25 E. Washington Street.

A Rational Perspective*

BY THOMAS COWLING, M.A., D.D.S.



MY first duty is to express my appreciation of the privilege of meeting the members of this important association. The excellent work that you are doing in molding public opinion is well known and greatly appreciated.

I take it that the acceptance of an invitation to speak to the members of this club does not necessarily imply that there should be a mere exchange of civilities, or that there must needs be a full agreement between the speaker and the audience in the things said. Obviously you are not here for mere entertainment. No doubt I am correct in assuming that these meetings are held solely for the purpose of obtaining information respecting subjects of national importance.

That you should claim the right of examining the credentials of those who presume to address you I quite fully understand. So I must explain that my only claim to this distinction is that I am a Canadian and, as such, have been interested in the question of our national resources.

It is a difficult thing to say much concerning the resources of Canada in the time allotted for an address of reasonable length. The subject is "as wide as an ocean and the time as narrow as a strait." There is ever present also the danger of a sort of patriotic hysteria when speaking about our native land. There is, for instance, some comfort to be had from assuring an audience that Canada's future is destined to be that of a conquering nation because the victorious armies have always come from the north. This hypothesis has a certain appeal for Canadians because we are about as far north as it is possible or comfortable to be. But for this brand of patriotic enthusiasm I have little use, because it will be found, even upon superficial examination, to be faulty. The cities of Athens and Rome, with their vast colonial expansions, left the impress of their culture and learning upon the conquered nations of the north. There is no necessity for exaggerated claims when speaking of Canada, consequently I shall endeavor to present my subject in sane and measured terms. There is no need for the violation of accurate speech.

The subject, "A Rational Perspective," was suggested by the statement of a very eminent artist, who expressed the opinion that only through the well-trained eye of the artist is it possible to see the true beauty of the natural objects all about us. The artist alone has an

* An address recently delivered before the Young Men's Canadian Club of Toronto.

adequate conception of contour, shade and coloring. He derives much of this advantage through his ability to secure a correct perspective. So I ask you to spend a little time with me in making a survey of some of our resources as they appear in the clear light of facts and as viewed perspectively. In order to do this it will be of benefit first to refer briefly to our country's progress during its early period of settlement because it is but the simplest of truisms to say that the key to the future is frequently found in the past.

A retrospect of Canada's growth is not at all displeasing. Indeed, few countries have made such substantial progress. In a few years Canada has emerged from a position of comparative obscurity to one of commanding importance among the nations of the world. During the recent world war our inexhaustible mineral resources became known, and this, combined with the ability to assimilate tremendous war obligations, secured for Canada a position of first importance among the leading nations. Canada, we may truly say, was recast in a day.

The records of our early struggles and economic expansion parallels that of most new countries. The early attempts at development were characterized by lack of transportation facilities, shortage of funds and need of immigration. As might be expected, we were to a large extent dependent upon others for assistance in all of these departments. Canada owes a great debt of gratitude to her friends for the support received during the crucial period of national growth, and especially to the foresight and confidence of the mining engineers who saw in our vast mineral deposits the future world's storehouse of important metals.

We must pay tribute, also, to that noble group of men of the geological survey, who, at great sacrifice, gave unstintingly of their best for the benefit of Canada. Sometimes we are forced to the conclusion that these men have not been given as generous a recognition as their services warranted. With grateful acknowledgment to all who have done pioneer work in the great enterprises, the benefits of which we are now enjoying, we hasten to "take up the torch and bear it high," well knowing that the undertaking involves hard and persistent work, for, although much has already been done, more remains to be accomplished.

Although a review of our national growth must occasion considerable pride yet we cannot escape the consciousness that, to a very large extent, we have stumbled into much of our prosperity—at least in so far as our mining industry is concerned. It might be said, and with a great measure of truth, that we have been guided by the beneficent goddess Chance in much of our success up to this time. Instance the incidental uncovering of the great Sudbury nickel-copper deposits as

the outcome of the building of the transcontinental railway; the discovery of the world's greatest silver district at Cobalt when the Provincial Government was forced to build a railway connecting the New Ontario settlements with the older parts of the province; the opening up of the enormously rich gold areas of Porcupine when this same railway was pushed on to Hudson's Bay; the disclosure of the world's largest and best asbestos deposits in Quebec when a railway was constructed along the shore of the St. Lawrence River—all these important discoveries were the outcome not of definite planning, but the accidental outgrowth of transportation development. So we might safely infer that the future holds even greater rewards in store for Canadian enterprise when the present haphazard methods shall have been replaced by a consistent, well directed and systematic scheme of exploitation.

We cannot ignore the fact that the development of our mineral resources has often been characterized by a form of impatience and petulance. We have been satisfied with our labors only when the returns were very rich. Unconsciously we have been playing the role of the gay philanderer, flitting from place to place, gathering rich returns here, there, everywhere, but unwilling to stay long in any place unless the rewards are richly abundant and easy of acquisition. We shall soon be forced to change our methods. The gay philanderer must become the consistent and persistent wooer of success.

We have observed that Canada has become listed among the world's great nations. We must remember, however, that we can become truly great only through importing less and using more of our own materials. At the present time there are, unfortunately, instances where we import materials of a quality inferior to our own, and in many cases we import the manufactured products of our own raw materials. One needs little knowledge of elementary economics to know that as long as this situation obtains we shall fail in measuring up to our true national stature.

We speak of Canada as a young country and take pride in prophesying its future. Prophecies are hazardous things and often bring the prophet into disrepute; yet of Canada we may safely make certain predictions and for this reason: The geological formations of the United States and Canada are to a great extent similar. In the east the Appalachian Mountain system is characteristic of the Eastern States and of the Maritime Provinces. The Canadian formation holds practically the same deposits as those that have accounted for the enormously rich developments in the eastern sea-board states of the United States. There is every reason to look forward to similar developments in the Canadian extension of this mountain range.

There is a great area of pre-Cambrian rock formation extending north of the St. Lawrence Valley, from Newfoundland to the Lake-of-the-Woods and enclosing Hudson Bay. This formation covers millions of square miles, yet over the greater portion of it only reconnaissance surveys have as yet been made. Indeed, the southern fringe is all that is known as yet. The rocks of the pre-Cambrian formation have long been noted for the variety of useful and valuable minerals that they contain.

In a tongue of this formation that extends into New York State large iron deposits are found, and just across the Canadian border enormous copper deposits occur. It is a significant fact that in this pre-Cambrian formation have been located the largest deposits of iron, copper, nickel, silver, gold and cobalt. In view of the fact that all of these metals have been found in that section of the formation that has already been investigated it is thought that a veritable treasure-house of the same minerals occurs further north. The provinces of Manitoba, Saskatchewan and Alberta may be said to comprise the Interior Plain—just outside the pre-Cambrian formation. This section is essentially agricultural, yet it also contains vast deposits of clay, coal, natural gas, etc.

On the west we have the Cardilleran belt, which extends from Mexico through the Western United States and forms the massive Rocky Mountains of British Columbia and the Yukon. It is characterized throughout its entire length by rich mineral deposits. The richness of Mexico long ago was the magnet that attracted the Spanish adventurers across the seas, and even to-day these mountains are producing precious metals in great abundance. In Canada this wonderfully rich area has been but superficially explored. Only in the southern portion has any serious attempt at exploitation been made, yet one of the richest gold mines has been uncovered in the Portland Canal district.

The Great War taught us many lessons. Canada learned, among other things, that although it is an excellent thing to be a producer of raw materials it is better to be a manufacturer of the raw material, and so be independent of imported supplies. Long before the war Canada was the world's chief producer of nickel, asbestos and cobalt, and a very important producer of arsenic, chromite, feldspar, graphite, gypsum, mica, magnesite, pyrites and talc; yet when the war began Canadian manufacturers were enormously handicapped for want of facilities for using our own materials. For instance: With an embargo placed upon the export of graphite from Ceylon, Madagascar and Canada by both the British and French Governments, Canada was unable to secure graphite crucibles for metallurgical processes, because,

although producing the raw material, there was no facility for manufacturing it in Canada. This brought to a standstill many essential metallurgical industries. Canada, after a time, was permitted to import sufficient supplies to satisfy urgent requirements.

There was a somewhat similar yet withal more tragic situation with respect to our nickel industry. We possessed the world's largest supply of nickel, but the actual refining of the metal was done abroad; consequently much of the metal found its way into enemy hands during the war.

You have, no doubt, a distinct recollection of the shortage of platinum during the duration of hostilities and for some time afterwards. This metal became, due to its inherent properties, one of the most, if not the most, useful metals in many of the war operations. Russia had been supplying the world with its platinum, but during the war all supplies stopped. It was known that the nickel-copper ores of the Sudbury (Ontario) district contained platinum and its associated metals, but Canada possessed no facilities for refining these ores. As a result Canada suffered, the Empire suffered, and, indeed, the entire allied cause suffered from this deficiency. Other illustrations of a similar nature might be cited if time permitted.

There is an unfortunate misconception in many minds that national greatness is inseparably linked up with the production of precious metals such as gold, silver and platinum. These metals receive too much emphasis in the education of our children. No doubt the oft-recurring references to streets paved with silver and gold have the effect of giving these metals an undue importance in the imaginative minds of the children. It takes a lifetime to dissipate this mistaken teaching. It is a fact worth emphasizing that national prosperity is more intimately linked up with what is generally termed the base-metals, such as iron, copper, lead, zinc, magnesite, molybdenum, nickel, cobalt, gold, silver, etc.; also the non-metallic minerals, such as gypsum, asbestos, mica, feldspar, clays, etc.

Such, then, is the picture—certainly a very incomplete one—of our heritage. We have little need for worry regarding our estate; we might better be concerned about those into whose possession it will pass. If our young Canadians—another kind of national resource—are not adequately prepared to administer the great trust, then the heritage will soon be dissipated and pass into alien hands.

It is not a popular vocation to criticize the prevailing methods of training young men. Most of us would rather not say anything that could possibly be construed as being in the nature of an adverse criticism. But I shall make bold to venture the opinion that there is a growing feeling in some quarters that it is now time for a change.

Many are giving it as their opinion that, under the present system, resourcefulness is not developed in young people; that too much is being done for them and they are doing too little for themselves. Let me attempt to illustrate it in this way: You plant a tree in suitable soil, placing it where it will be protected and get sufficient sunshine and moisture. As it grows you trim it in a manner calculated to direct the strength into the leading shoots. In their search for moisture the roots dig their way down into the soil; they become entangled with the pebbles and stones. In effect the tree becomes deep-rooted, and so it is enabled to withstand storm, tempest and drought. If, on the contrary, in your eagerness to produce quick growth, abundant blossom and luscious fruit, you constantly cultivate the soil about the new tree, digging deeper and deeper, pulverizing the earth finer and finer so that the moisture will easily find its way to the thirsty roots; then these roots will come to the surface and not delve down into the hard, resisting soil. When the first severe storm blows this too-thoroughly cultivated tree will be blown over, because its anchorage is insecure. The only difference in the growth of a tree and the development of a man is the difference in capacity. Both respond to treatment according to fundamental laws. Pampered youth will result in inability to withstand the storm, the stress and the temptations of adult life. There may be plenty of growth, but it may not be growth of character.

Every one should be given an opportunity to secure a good education. Education alters the complexion of life. We absorb a great deal as the result of association with those possessing trained minds. It was Aristotle who very many years ago stated that education was needed by all because it made an individual do through choice what could not be done by force. As the individual improves so does the state improve. Our young people should be taught that education is a costly thing and, as such, should be appreciated.

It is a misconception to liken Canada to a lotus garden. True enough, Canada offers an opportunity to everyone to pursue any form of occupation, but success can only come through persistent endeavor. It is a popular misconception that a man should have some support other than that gained by his own efforts; that the state should guide, direct and support him. Such a form of paternal supervision will inevitably result in the production of a moral and intellectual cripple.

A young man should not only receive a good education and be taught to respect labor, but he should also cultivate a modest demeanor. Too much publicity is harmful to the average youth. The ancient Greeks had the correct idea, for we learn that it was their custom to make no demonstration when a vessel sailed away for a distant port. They reserved their cheers and plaudits for the vessel returning with its sides battered in and sails torn to ribbons. They reserved the

rewards for the ship that had weathered the storm. So it would be much better if we changed our methods somewhat and bestowed our praises only upon those who have done something of real merit. It would be a better thing if our young aspirants for public life were introduced to the humble log cabin before being allowed to sink luxuriously in the seats of the mighty at the White House. The best preparation for life is not in mimicing great men, but in preparing the foundation for future growth through close application to study.

National greatness does not consist of mineral and other natural resources. There are more important factors involved. We do not hear much about the mineral wealth of Scotland, but Scottish traits and character are revered and envied the world over. Lowell says that the value of a country is weighed in scales far more delicate than the balance of trade. We know that this is true. The City of Athens is renowned throughout the civilized world not because of the greatness of its imports or exports, but because of the undying impression it has made upon culture and learning. We remember Athens as the centre of an art that has rarely been equalled and can scarcely be surpassed. We can also say that Canada has taken on a new importance in the eyes of the world since Dr. Banting made his wonderful contribution to medical science. So we must impress upon the minds of young Canadians this fact. The true measure of national greatness, in the last analysis, is judged by the amount contributed to the betterment of the world's happiness.

It was Roosevelt who said that the wilfully idle should arouse no feeling of envy—only a feeling of contempt. There is a bitterness in poverty, but it is not as bad as physical, moral and intellectual flabbiness.

As members of the Young Men's Canadian Club your chief duty is the molding of Canadian manhood. This will require effort and skill.

There will be times of discouragement, no doubt, and your labors may seem futile, but you should ever remember that sometimes the best results are obtained when they are least expected.

"Toil away and set the stone
That shall stand when you are gone;
And ask not that another see
The meaning of your masonry.

"Grind the gem and dig the well,
For what? for whom? I cannot tell.
The stone may mark a boundary line.
The well may flow, the gem may shine.

"Be it wage enough for you
To shape them well and set them true.
Of the future who can tell?

Toil on, my friends, and so farewell!"

Extracts From President's Address, American Dental Association

C. N. JOHNSON, M.A., LL.D., D.D.S.

THE TENDENCY TOWARD SPECIALIZATION.



WHEN dentistry began to extend its activities beyond the mere filling and extracting of teeth and the insertion of dentures, and when our technical processes became more and more intricate and exacting, it was soon discovered that no one individual could become expert in every department of our service, and thus specialists were born. Through their agency dentistry was made to develop in a way never dreamed of by our pioneers, and we owe a lasting debt of gratitude to the energy, the concentration and the genius of these men. In the perfection of their technique and in the ingeniousness of their methods, they have compelled the admiration not only of the profession itself, but also of the outside world, and they have done much toward giving dentistry a higher status in the eyes of the people.

But there has developed another and a less alluring angle to the situation. The inevitable tendency in too much concentration on one thing is narrowness of vision, and our specialists have not escaped this limitation. In a complicated organism such as the human system, there is an interrelationship between the various parts which must be reckoned with in any adequate comprehension of the factors which make for health or disease, and this our specialists sometimes seem to forget. Their constant concentration on a single part soon makes them assume that this is the only part, and the consequence is that the patient is not always well served. Their vision becomes warped and their judgment biased, and too frequently their decisions are detrimental. One feature of this is unfortunate. Everything else in the entire physical economy is made subservient and secondary to their own particular field. It is only natural that this should be so. If a man specializes in radiography and exodontia, it is difficult for him to see that every affected tooth is not an enemy to mankind. He finds no virtue in the possibility of treating and saving such teeth, even though it is a demonstrated fact that literally millions of these teeth have been successfully treated and saved for many years, to the great benefit of the patient. The fact that he does not treat teeth causes him to lose faith in the efficacy of treatment. If he sees one case in which treatment has failed, it is sufficient to convince him for life that treatment is futile. And this conviction is conveyed, consciously or unconsciously,

to every patient who comes to his office. This is only one phase of the unfortunate narrowness which creeps into specialization. It would be well if every specialist were first a general practitioner, and thus equipped for a wider comprehension of all the factors which are likely to enter into the manifestations of disease in the mouth, and thereby able to render a more intelligent service.

Another unfortunate feature of specialization which applies as well to medicine as to dentistry is the confusion which it is introducing in the public mind. If anything is wrong with a patient to-day, he is driven about from specialist to specialist till, utterly wearied with conflicting opinions, he loses faith in professional men, and sometimes in humanity at large. And he cannot be blamed. With all the splendid achievements of our specialists, there has never developed anything half so fine in professional relationship as that which existed between the old family physician or family dentist and his patients. It was a relationship which meant more than a mere professional association—it was a close and intimate personal friendship in which confidence, loyalty, and good-will supplanted all the hard and fast rules of daily life. In its best traditions, it forms one of the brightest chapters in all human experience, and, within its given sphere, it demonstrated the highest conception of loving kindness and faith in the common brotherhood of man. While to-day there is urgent need of specialists, there is still a more urgent need of general practitioners of both medicine and dentistry.

THE SEVENTH INTERNATIONAL DENTAL CONGRESS.

In the city of Philadelphia in August, 1926, there is to be held the Seventh International Dental Congress. On that occasion, the dentists of America will be hosts to organized dentistry the world over, and the members of the American Dental Association in particular should exert themselves to the utmost in order that our visiting colleagues from foreign lands may be assured not only of a hearty welcome, but also of a scientific and literary programme of such character that those coming from a great distance may feel well repaid for their trouble.

The advent of the Congress will place on our incoming officers an added responsibility. For the ensuing year, they must think on terms of internationalism rather than nationalism. It will also be their function to demonstrate to the world the best traditions and principles of American dental practice. It is contemplated in the general plan of the Congress, to place one entire day's programme exclusively under the direction of the officers of the American Dental Association, which in itself should put them on their mettle to produce the best there is to offer in organized dentistry.

We bespeak for the Congress officials the cordial co-operation of every loyal member of the American Dental Association in their arduous task of carrying this Congress to a successful issue. It will be recalled that the Sixth Congress, at London, in 1914, was interfered with by the breaking out of the war, and, after the interval of twelve years, there must, in the natural order of things, be many changes in our clinical methods as well as in our general professional points of view. These changes will all be the subject of deliberation at the coming Congress, and, in the light of what were some of our prevailing opinions in 1914, certain of them will seem almost revolutionary. It is expected that, at this Congress, there will be a proper evaluation of the various theories that have been advanced during the interval since 1914, and that dentistry will thereby be placed upon a more stable basis.

At the recent meeting of the Federation Internationale Dentaire in Geneva, in August, 1925, the officers of the Seventh Congress made a report on the general plan of the Congress and the progress thus far made, and, on action of the Federation, the plans were approved. The attendance from abroad promises to be large, and everything at the present time augurs well for the success of the meeting.

CITIZENSHIP.

In every representative organization of professional men and women such as the American Dental Association, there is an entity and influence beyond that confined solely to the particular field of its special activities—there is its relation to the great world of thought and action which goes to make up what we call modern society. Coming as we do from every state in the Union, and representing, as we should, at least a respectable average of intelligence and responsibility in our various communities, it becomes incumbent on us to give some thought to our obligation as citizens of this great commonwealth. It, therefore, seems altogether appropriate that, at our annual gatherings, we make some reference to this matter of citizenship, which, after all, in the exigencies of our daily lives, has an important bearing on our ultimate happiness and the happiness of those about us.

Never in our entire history—not even in the shadowy days of the great World War—was there a more urgent call for seriousness of thought in connection with our duty to society than there is to-day. We see manifest from one end of the land to the other—particularly in our great centres of population—an apparent loosening of our moral bonds which threatens to place in jeopardy the very foundations of responsible government. The prevalence of crime, which has increased in alarming proportions, is only one manifestation of the general disintegration of

society. One of the unfortunate features of the present crime wave is the apparent indifference to it on the part of the average citizen. From bootlegging to bombing, and from organized and systematized mendicancy to murder, it is all taken as a mere matter of fact. As long as crime is blinked at by society, it will increase; and when the ordinary individual who carries about with him the badge of respectability openly violates the law without apparent compunction, it is the beginning of a serious disruption of our body politic.

Attempts at the punishment of crime and the reform of society are spasmodic and inconsequential. Crime is seldom adequately punished, and reforms are ephemeral. This is not intended as a sweeping indictment of society at large: it is the mere statement of a patent fact. There are several causes for this state of affairs, which need not be considered here. What concerns us most, at this time, is the remedy—and the remedy is this: Not till public conscience is aroused to the enormity and danger of law violation, and not till the people themselves awaken to the seriousness of their own responsibility in the matter, can we ever hope to achieve reform. Public opinion rules in all great emergencies, and, after all, it is the voice of the common people which dictates our civic policies. The trouble is that the average citizen does not look on these matters as his concern. At all times and in every way, he avoids the issue with a smug complacency, assuming that the responsibility of regulating the moral status of his community rests on someone else—someone remote—someone—he knows not who it is—but not himself. If you ask him who should regulate these affairs, he will wave the hand and generalize. And this is where the fault lies. From the day that Cain raised the question, "Am I my brother's keeper?" till now, it has ever been the same.

You men and women of the American Dental Association, it is upon such as you that the real responsibility rests. You represent the average citizen—yes, even the more intelligent citizen. It is your sacred duty when you go back from this meeting into your various communities to carry with you a new conviction and a new resolve. Buoyed by the courage and inspiration which must come to you from association with so many others of your own calling, you must consecrate yourselves to a higher service and a broader vision—a service that shall extend beyond the bounds of mere professional practice, and lead you to the performance of all those tasks which go to constitute the essence and the substance of what we know as good citizenship—a vision which shall point the way to a higher conception of life and its possibilities, and reveal to you a realm of rarer worth and purer motive, where the sons of men may bask in an atmosphere of happiness and hope.

What of the Future of Canadian Dentistry?

J. STANLEY BAGNALL, D.D.S., HALIFAX.

"Where there is no vision the people perish."



THE recent Editorial in ORAL HEALTH must bring us face to face with the problem, What is to be the future of national Canadian dentistry? Are we laying the foundation stones which will build of our profession a structure worthy of Canada as a nation? The Canadian Dental Association, in its short history, has done much to weld our professional body into one component whole, but even its most ardent supporter can hardly claim that it is a national body.

It is true that we are faced with great difficulties,—a comparatively small body scattered over thousands of miles of country, so that no matter where a convention is held it will remain inaccessible to a large portion of the profession. This carries with it the dangerous tendency towards sectionalism and the message which Sir William Osler gave to the Canadian Medical Association in Montreal, in 1902, might be applied to-day, with equal force, to the Canadian Dental Association: "Naturally, in widely scattered communities,—sectionalism—a feeling or conviction that the part is greater than the whole—does exist, but it is diminishing, and one great function of the national associations is to foster a spirit of harmony and brotherhood among the scattered units of these broad lands. But we suffer from a provincialism which has gradually enthralled us." This need for the development of a national organization was also well expressed by Past President Dr. S. W. Bradley, in his address at Vancouver, at the last meeting: "There is perhaps no one thing more vital in the economic and professional life of Canada than that there be a unity of feeling and of understanding between its more widely separated peoples. No country, and in this respect, no profession, can endure and continue to meet the obligation which has been imposed upon it, unless there exist between the parts something which tells them of each other; something that places the welfare of the whole in a position of paramount importance as compared with the welfare of the local section."

While we may be agreed on the theoretical value of the desirability of a national organization, still I think that we must go farther than that and be agreed that there is an actual need for it. That this need is a real one was well brought home to us a few years ago when the Sales Tax question came up. Just what would we have done at that time if there had not been a Canadian organization? Who can pro-

phesy what problems of a like nature we may be forced to meet in the future, and how will they be tackled if we allow our organization to die of dry rot, as there is some danger of its doing, if it does not develop with our needs? Quite apart from the problem of what may happen in the future, are there not very definite problems which should be tackled at once? Surely those which have been raised in the editorial referred to demand action and to these might be added others, such as:

1. There is the question of Research. It is true that we have a Canadian research foundation, but it is not backed by Canadian dentists as a national body, in the way that is being done in England and the United States.

2. Is there not a need for a body to investigate the materials introduced by the various manufacturers, or must we be dependent on the research work and claims of manufacturers? True, the establishment of any elaborate institute is much too big a problem to be tackled by a small body, but it might be possible to collect reports from clinicians of recognized ability in the various lines, and condense and forward them for the information of the members.

3. Have we really good dental libraries in Canada? Yet we must have them if we are ever going to do intelligent research work. Along with this there is the need for some central depository of the records of dentistry in Canada. Even a beginning is desirable; the longer it is delayed the greater the difficulties become.

4. Editorial comment in the last issue of the "Dominion Dental Journal" seems worthy of consideration, namely, the possibility of a central organization obtaining clinicians who might be routed through a group of Societies and thus decrease the expense to each one.

If then we are agreed that there is a real need for a national organization, what steps must be taken to create it? Dr. Bradley has already advanced the scheme that each of the Provincial societies become component units and subscribe a small fee for each of their members; and as this has already worked out so successfully in the case of the American Dental Association we have a precedent demonstrating its value. If this were only fifty cents per member it would amount to upwards of \$1,500.00 per year, with which much might be done.

A series of objectives, no matter how worthy, will however fail to hold an association together unless there is some ready machinery for the exchange of ideas and for free discussion. Several plans have been suggested to overcome this difficulty. It may be taken for granted first that an association which meets only every two years, with a central executive which shows a pretty constant tendency to change and whose policy is not continued from year to year by a secretary devoting at least a fairly large proportion of his time to the work, and advised by a

slowly changing body of governors or trustees, or house of delegates, hardly meets the requirements.

What plan must then be adopted? Several have been suggested, in the consideration of all of which we must keep in mind the distances to be travelled to the meetings. Thus we have the plan of sectional meetings. This overcomes, to a large extent, the question of distance; but it tends to aggravate that of sectional differences which are fatal to a national body. Then there is the plan to hold annual meetings. This has the definite advantage that it keeps the organization active all the time, instead of slumping every alternate year, as it tends to do at the present time. It also increases the number of places in which meetings may be held and gives a potential increase of say 100% in the number who attend the meetings. Finally, there is the plan to do away with conventions and have the business administered by an elected board much as the "Dominion Dental Council" is handled at the present time. While this fairly meets the problem of the difficulty of getting together a representative body from the various provinces at a convention it has its disadvantages. The members of the provincial organizations have not a sufficiently close contact with the problems of the profession. They may take sufficient interest to give their representative certain instructions, which may prove valueless when he meets with representatives from other provinces. Some entirely new angle is given the discussion, and he is unable to go back to his local association for further instructions. Again, there is a tendency to make this body too stable through the liability of the continued reappointment of the same body of men, which, with the previous difficulty, will cause many members of the local associations to lose interest and feel that they are being subjected to clique government.

With any of these ideas we may well link up the idea of a publication, as suggested by Dr. Bradley. Whether the association should enter the already rather crowded field of dental bulletins and journals, or make some arrangement with one already in the field is a point for discussion.

Clearly then there are problems which are difficult of solution, but should we not begin to actively think about them and discuss them before we meet together next August? Is it not high time that we begin to build truly and well in order that we may advance toward our vision of a "Canadian dental profession united for public service"?

"Books, like friends, should be few and well chosen. Like friends, too, we should return to them again and again—for, like true friends, they will never fail us—never cease to instruct—never cloy."

Canadian Dental Association Convention



THE dates selected for the next biennial meeting of the Canadian Dental Association in Halifax are Aug. 16-17-18-19, 1926. These dates have been selected after correspondence with a large number of dentists in different parts of Canada, as likely to be the most suitable. While they will not prove suitable for anyone who is planning to take in the meetings of the Orthodontists during the week previous to the International Dental Convention, they will allow sufficient time for any who are planning to take in the Canadian and International meetings.

Did you take that trip to Vancouver with Gus Kennedy in 1924? If you did,—enough said,—you will be already planning to round out your Coast to Coast trip with him. If you didn't, get in touch with him right away so he will be able to make his plans. We will placate our Western friends right here by saying that we may not have anything in scenery to equal the Rockies in grandeur, but if you come by train you will pass through areas of rare beauty on your way. And if you plan to come by automobile you will find good roads all the way through Eastern Canada.

If you are a Maritime man who has wandered far from home, what better time to take a vacation trip and see the old boys again? If you have never come down here by the sea then you have missed a delightful part of Canada, rich in historical associations.

Now that the local committees have begun actual work we will have something to tell you each month. Have you some ideas which will help the success of the meeting, or is there some information you want? Following are the Chairmen of the various committees:

Programme.....	Dr. Karl Woodbury.....	Halifax
Exhibits.....	Dr. W. C. Oxner.....	Halifax
Publicity.....	Dr. F. W. Johnson.....	Halifax
Entertainment.....	Dr. W. H. H. Beckwith...	Halifax
Entertainment (Ladies)....	Mrs. G. K. Thomson	Halifax
Transportation.....	Dr. C. B. H. Climo.....	Halifax

Special Train Party from Toronto: Dr. C. A. Kennedy, 86 Bloor St. W., Toronto.

Dr. J. Stanley Bagnall, Sec.-Treas., 34 Larch St., Halifax.

Dr. G. K. Thomson, Pres., Chronicle Bldg., Halifax.

Dentist Honored by St. Andrew's



THE *London Evening News* gives a very interesting account of how, on August 5th, Colonel Bernard Cyril Freyberg, V.C., C.M.G., D.S.O., with as little ceremony as that accompanying his famous war exhibit in the Gulf of Saros, swam across the Channel to within a quarter of a mile from the Kent

shore between Kingsdown and St. Margaret's. There, exhausted by a struggle with the tide, which was carrying him out to sea again, he was taken aboard the tug attending him, after being in the water seventeen hours.

Colonel Freyberg's Channel exploit was completely without the heralding that usually accompanies efforts by swimmers to beat the treacherous tides of the Channel; in fact, few people, if any, guessed that the brief announcement that Col. Freyberg had started from Cape Grisnez referred to the soldier who achieved such unusual exploits during the war.

Colonel Freyberg, a Londoner by birth, but brought up and educated in New Zealand, where he was a dentist before the war, became a brigadier-general by the time he was 27. He is now 35.

On arriving in England from Mexico on the outbreak of hostilities, he was made a lieutenant in the Naval Brigade. He fought at Antwerp and was wounded three times and mentioned in despatches. Then he went to the Dardanelles, and in 1915 won the D.S.O. for a great swim ashore from a destroyer in the Gulf of Saros for the purpose of lighting flares to draw the Turkish fire. For this purpose his skin was painted khaki, and he was dropped into the sea nearly half a mile from the shore, just after midnight. He dodged the ordinary landing-place, crawled inland, lit three flares, and swam back to the destroyer. He found the destroyer only with difficulty, and was greatly exhausted when picked up.

The V.C. was awarded him the following year for his wonderful leading of the Royal Naval Division in the capture of Beaucourt. During the advance he was twice wounded, but he rallied and reformed his men, and after many rebuffs led an early morning assault which captured the village and 500 prisoners. He was wounded in all four times during the Beaucourt operations. Altogether he was mentioned in despatches six times and wounded nine times, and he has two bars to his D.S.O.

After the war Colonel Freyberg took a prominent part in the effort to raise money for a memorial to the Naval Division. Three years ago he married the widow of the Hon. Francis Walter McLaren, M.P., a daughter of Sir Herbert Jekyll, and a son was born in 1923.

Colonel Freyberg was made LL.D. by St. Andrew's University on the same day that Sir James Barrie received the degree. It was on that occasion that Sir James gave his famous address on "Courage," taking one of Colonel Freyberg's exploits as an illustration.

THROUGHOUT CANADA

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BRITISH COLUMBIA.

BRITISH COLUMBIA DENTAL ASSOCIATION.



THE annual picnic of the British Columbia Dental Association was held at Seaside Park, in August. Dr. House, of Kansas City, and Dr. Stansberg, of Seattle, were guests for the day.

Dr. House changed his railway tickets so often while here that the ticket agents were calling him by his first name.

The picnic was a success and thoroughly enjoyed by everyone. Some of the old fellows like Frank Moore and Emery Jones have not recovered from the baseball match. Youth will be served, boys.

The annual meeting of B.C.D.A. was held at Seaside Park, and the following officers were elected:

President, Dr. E. J. Jones, New Westminster, B.C.; vice-president, Dr. Gunning, Victoria, B.C.; secretary, Dr. Fraser Allen, Vancouver, B.C.; treasurer, Dr. Roy Shortreed, Vancouver, B.C.; auditors, Dr. R. L. Palen, Dr. Norman Guy, Vancouver, B.C.

The treasurer's statement was presented and showed the association to be in a healthy financial condition. The balance in the treasury is about \$2,000.



ALBERTA.



THE visit of Dr. W. D. N. Moore to this province, to give clinics to the members of the Alberta Dental Association, one cannot say more than that our visitor lived up to what has become almost a tradition with us, the high courtesy and able teaching of our previous visitors and friends from Chicago.

One cannot but be stimulated to do better work as the result of his teaching and his marvellously exact workmanship, and to higher ideals by his earnestness and by association with him.

About one hundred and thirty of the two hundred dentists in the province took advantage of Dr. Moore's work, and his stay here for a month, at a good deal of personal sacrifice, leaves in his debt many men who feel handicapped by the distance which separates them from centres of dental education.

Dr. Leslie McIntyre and Dr. A. B. Mason, the committee in charge, are to be congratulated on their choice, and the management of the clinics was a credit to themselves and to the executives of the four local societies which carried out the details in the various centres.

Dr. Moore enjoyed a trip to the mountains with Dr. J. M. Dixon, of Calgary, the president of the Calgary society. He also discovered that twenty miles in about five hours is fast and thrilling travelling on an Alberta "gumbo" road after a heavy rainstorm.

J. W. C.

* * *

MANITOBA.



THE officers of the Winnipeg Dental Society for the season 1925-26 are as follows: President, H. Mitchell; Vice-President, E. White; Secretary-Treasurer, B. Brownlee; Executive Committee, B. Toombs and K. Johnson.

The Society commenced its activities by having Dr. Boyd Gardiner, of the Mayo Clinic, Rochester, on October 13th, and a very interesting time was enjoyed, of which a full report will be made later.

* * *

Dr. Harry Garvin, of Winnipeg, has been elected President of the Peridontia Section of the American Dental Association, an honor to himself and to Manitoba and a distinction which those who know him realize he deserves.

* * *

The golf competition is closed for this year. Dr. W. A. Weir is the holder of the gold cup donated by The Ash-Temple Company for open handicap competition. Dr. P. Gallagher holds the silver cup also donated by The Ash-Temple Company for those in the century class.

* * *

Did you ever hear of "lead" fillings? Some of our members are placing them. It's a difficult thing to place them properly, but when well placed they are very permanent; besides there is more "kick" to lead fillings. When backed up by gunpowder and well-directed at Mr. Duck, they result in a dinner for two and a memory of a very pleasant outing.

Drs. M. H. Garvin and Doug. Brown motored to the big convention at St. Louis, including some points in Ontario on their return trip.

* * *

Dr. Wright and family took a motor camping trip during July and part of August, visiting Yellowstone Park, Portland, Vancouver, Victoria, Penticton, Lake Louise and Banff. There was no delay on account of roads during the 6,000 miles travelled, except for one hour during a heavy rainstorm.

* * *

It is expected that the study clubs which did some fine work last winter will continue their work immediately. You need to be in a study club to appreciate the value of the work done. W. W. W.

* * *

ONTARIO.

ONTARIO DENTAL ASSOCIATION, 1926 MEETING.



THE Board of Governors of the Ontario Dental Association decided to hold the next convention at the King Edward Hotel, May 17th to 20th, 1926. Dr. J. A. Bothwell was elected chairman of the board, and the following committees were appointed to take charge of the various activities:

Clinics—Drs. Amy, Clappison and Ellis.

Publicity—Drs. McLaughlin, Chalmers, Devitt, Sprott, Winnett and Campbell.

Exhibits—Dr. Zimmerman.

Arrangements—Drs. Kennedy and Thompson.

Entertainment—Drs. Thompson, Moore and Hoskin.

Registration—Dr. Bothwell.

The Publicity Committee was instructed to make arrangements to publish "The Booster," the board being unanimously of the opinion that it provided the best means of getting in touch with the members of the profession and presenting to them the attractive features of the convention.

The association is becoming so large and the work of arranging for the convention so onerous that it was determined to have the secretary-treasurer act as the secretary of each committee and carry into effect the decisions arrived at by the various committees. In this way the different departments of work will be correlated, and overlapping and overlooking reduced to a minimum. The secretary-treasurer was authorized to engage a stenographer on a half-time basis, and will be given an honorarium commensurate with the services rendered.

ACADEMY OF DENTISTRY, TORONTO.



THE Academy of Dentistry, Toronto, is arranging for Study Groups for Season 1925-26, including the following subjects: (a) Preventive Dentistry. (b) Operative Dentistry. (c) Crown and Bridge Work and Partial Dentures. (d) Dentistry in Relation to Systemic Disease. A Further Study of Dr. Weston Price's Researches. (e) Exodontia and Minor Oral Surgery. (f) Preventive Orthodontia.

Any other subject can be studied provided at least ten members make request for same.

W. G. T.

* * *

MARITIME PROVINCES.



At the Annual Meeting of the Prince Edward Island Dental Association the following officers and Executive Committee were elected for the coming year:

President—Dr. A. B. Reid.

Vice-Pres.—Dr. J. H. Ayers.

Sec.-Registrar—Dr. J. S. Bagnall.

Executive Committee—The above officers with Dr. F. E. Smallwood and Dr. A. A. Lockhart.

* * *

The 1925-26 session of the Halifax Dental Society was begun on Oct. 9th with the Annual business meeting. It was decided that the meetings during last session had been so successful that the same plan be carried out this year, namely that papers on strictly dental subjects or on subjects closely allied to dentistry should alternate with group discussions on problems of practical interest.

The following officers were elected for the coming season:

President—Dr. C. B. H. Climo.

Vice-Pres.—Dr. J. H. Rice.

Sec.-Treas.—Dr. J. Stanley Bagnall.

Property Officer—Dr. S. G. Ritchie.

Executive Committee—The above officers with Dr. W. H. S. Gray.

Dr. R. H. Stanford has been appointed dentist for pre-school-age work on the staff of the Dalhousie Public Health Clinic, vice Dr. Roberta McK. Forbes, who has left for the Rochester Dental Infirmary for post graduate work.

J. S. B.



PUBLIC HEALTH SERVICE

FOR THE PEOPLE ~ BY THE STATE

This Department is Edited by
FRED J. CONBOY, D.D.S.

Director of Dental Services, Province of Ontario



HE Oral Hygiene Committee of the Ontario Dental Association held its regular meeting at the Mulberry Tea Rooms on Thursday, October the first. Dr. A. W. Ellis was in the chair, and there was a good attendance of members. A very satisfactory report was presented by Dr. Conboy, showing that articles on dental health had appeared in a large number of papers during the month, and that the province-wide dental survey was progressing in a most satisfactory manner. Negotiations were being carried on with the Red Cross Society, and it was hoped that an arrangement could be arrived at whereby the Junior Red Cross would raise money to provide dental treatment for the children in the province whose parents could not afford to pay the regular fees. Dr. Conboy stated that within a very short time a series of posters on dental health will be sent to each factory or industry requesting them. Large charts, which may be used by dentists giving oral hygiene talks, will also be available, and these will be placed in such a form that they can be easily carried from place to place. Any dentist desiring the use of this material should apply to the Department at the Spadina House.

The scenario of the new motion picture was also presented, and it was decided to refer it to the special sub-committee to work out the details. This film should be ready for use within a few months.

The Director of Dental Services reported that the Department of Health has decided to have a "Dental Health Day" during the month of October, 1926. All the health officers and nurses of the Department will be urged to assist in making the preparations, and the Department hopes that it will have the whole-hearted support of every dentist in the province. The committee unanimously approved of the undertaking, and promised their enthusiastic support and assistance. In order that this dental educational effort may be made a great success, the members of the profession are requested to send to the secretary any suggestions they may have for the proper organization of the work in their locality. If the dentists of Ontario co-operate with the De-

partment in this endeavor it will prove of great benefit to the public, and bring honor and merited recognition to the profession of dentistry.

The question of providing dental treatment for the children whose parents could not afford to pay the regular fees was thoroughly discussed. It was recognized that the smaller municipalities could not afford to instal a complete dental equipment for a school clinic, and some other solution must be furnished. Two methods were presented—in the one the resident dentists do the work for a fixed fee per operation in their own offices, the nurse investigating each case and sending only those children whose parents are unable to have the work done in the ordinary way; by the other method the dentist provides the necessary treatment at a fixed fee per hour and sets aside certain hours for the school work. The committee decided that the per hour fee method was the better one, and thought that two dollars per hour would be a reasonable amount for the municipality to pay. Suggestions in regard to this whole question of providing treatment for the children of the poor will be welcomed, and the committee would like it to be known that in many places the dentists are doing this work gratuitously.

* * *



THE Ontario Department of Health is extremely anxious to co-operate with the profession of dentistry in all efforts to provide an efficient dental service for the people of Ontario, and to protect the general public from the harmful results of dental diseases.

The activities of the Department must of necessity be largely educational, and be associated principally with preventive dentistry. It cannot provide treatment, but as the members of the dental profession are most altruistic and public spirited, and have generously offered to provide this much-needed service to the various municipalities under most reasonable conditions, the Department is anxious to bring to the attention of the various municipalities the advantages of a dental survey and follow-up activities.

For the purpose of carrying into effect the general health programme of the Department, the province has been divided into eight health districts, and in each district there is a full-time health officer. The district health officer is in close touch with the medical officer of health in each municipality, and in that way the entire province is well organized. The Deputy Minister of Health has requested each district health officer to urge upon his local officers to stress the importance of oral hygiene, and to arrange with the school board for a dental survey in each municipality. This work is well under way, and the results are most gratifying, but we would like to have a closer co-operation between the district

health officer and the county dental societies. The district health officer would be delighted to meet with the county society to discuss dental and general health matters, and the Department will, upon request, be pleased to supply his name and address. Such a mutual and friendly relationship can only result in benefit to all concerned.

Elected Members of Parliament



WO members of the dental profession were nominated as Liberal-Conservative standard bearers in the recent Dominion elections and both were successful in the elections. Doctor E. F. Armstrong was elected to represent Temiskaming-South, while Doctor Langworthy was elected as representative of the Port Arthur-Thunder Bay constituency.

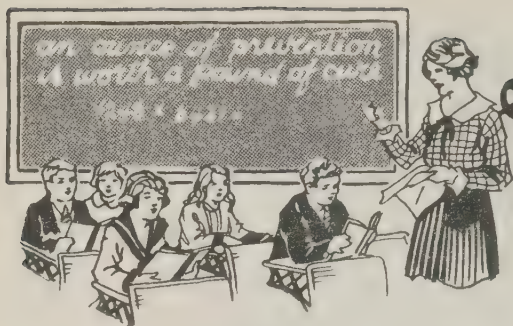
ORAL HEALTH extends hearty congratulations to both of these gentlemen and will appreciate receiving the names of any other members of the dental profession who were candidates in the recent Federal elections.

Dr. C. N. Johnson Appointed Editor of the Journal of the National Dental Association



HE duties and responsibilities of the General Secretary's office have become so exacting, and the details so great, that the Board of Trustees at Louisville decided to relieve the situation by instituting a division of service. The business management of the magazine has been placed in the hands of Dr. King, on a five year contract, and the editorial department is to be conducted by Dr. Johnson. A board of censors, appointed by the Trustees, is to pass finally on all matters going into the Journal, whether reading matter or advertisements, and the business manager and editor are to be in the closest conference on everything pertaining to the welfare of the magazine. It is confidently felt that by this arrangement the greatest efficiency will result, and the best interests of the Association shall be conserved.

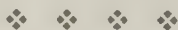
OTTO KING, *Business Manager.*
C. N. JOHNSON, *Editor.*



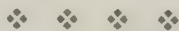
School Dentistry

This Department is Edited by
EDMUND A. GRANT, D.D.S.

Director of Dental Services—Department of
Public Health, City Hall, Toronto



We are anxious to receive for publication in this Department reports of work carried on in School Dental centres anywhere in Canada. Papers on any phase of Pedodontia would also be welcome.—E.A.G.



Dental Survey in Toronto Schools, Conducted by Department of Public Health

IN an endeavor to secure more complete information as to the condition of the teeth of the children and the extent of the improvement in that condition, as the result of the work carried on for fifteen years by the School Dental Service in Toronto, several changes were made this year in the method of making the dental examination and in the tabulation of the results.

The examination is very thoroughly made, using mouth mirrors and explorers, each examining dentist being furnished with a sufficient number of these instruments, together with a tumbler of sterilizing solution and two tumblers of rinsing solution arranged on a neat enamel tray.

The sterilizing solution is composed of formaldehyde 4 per cent., boric acid 4 per cent., in an aqueous solution, and colored to distinguish it from the rinsing solution, and also to label it as a poison by adding gentian violet, which also has an antiseptic action.

The rinsing solution is simply 4 per cent. boric acid in water. One tumbler of rinsing solution is used to wash off the formaldehyde before inserting in the mouth, and the other for removing saliva before returning to the sterilizing solution again. Six mirrors and six single end explorers are used in rotation, so as to have a sufficient time in the formaldehyde bath.

The figures for the month of September are as follows:

Number of children examined	11,307
Number of children with dental defects	7,496
Number of cavities in deciduous teeth	14,234
(or an average of 2 cavities per child.)	
Number of cavities in permanent teeth	10,576
(or an average of 1.4 cavities per child).	
Cases requiring orthodontic treatment	501
Extreme cases requiring prophylaxis (noticeably dirty mouth)	251
or 3.3%	
Cases of oral sepsis (where it was considered that the mouth condition was so bad that it was affecting the child's health and growth)	161
or 1.6%.	

That these figures show a great improvement in the condition of the children's teeth in Toronto schools is clearly shown by Dr. Charles J. Hastings, Medical Officer of Health, in his report for September, as follows:

MONTHLY REPORT OF THE MEDICAL OFFICER OF HEALTH.

The Board submit herewith, for information of the members of the Council, the following report of the Medical Officer of Health for the month of September last, viz.:

School Dental Service in Toronto commenced in 1910, when the first school dental officer was appointed. The service has grown gradually until to-day there are 31 dentists engaged on this work—four on full-time duty and the others half-time. They examine every school child once each year, and conduct 28 clinics in the schools for reparative dental treatment.

That there is a great improvement in mouth health of the school children of Toronto as a direct result of the work carried on by the School Dental Service of the Department is evidenced by a comparison of dental survey figures for the year 1910, before a dental service was started, and figures for the month of September, 1925.

In 1910 two schools were examined by members of the Toronto Dental Society, with startling results. Ninety-seven per cent. of the children had defective teeth, and mouths with five to ten dental cavities were quite common. Fifty per cent. had abscessed teeth or other serious mouth conditions which were interfering with their general health and growth, and delaying their progress in school.

Eleven thousand three hundred and seven children were examined during the month of September, 1925, by the survey dentists of this Department. Seventy-four hundred and ninety-six, or 66 per cent., had defective teeth, a reduction of 31 per cent. over the previous figures. The greatest improvement is shown in the fact that these 66 per cent. averaged only two cavities in the deciduous teeth and one cavity in the permanent teeth. Only 3 per cent. had unclean mouths and less than 2 per cent. were reported to have septic mouth conditions,

compared with the 50 per cent. discovered in 1910. It is impossible to estimate just how great is the improvement in the school children's health as a direct result of this preventive dental work.

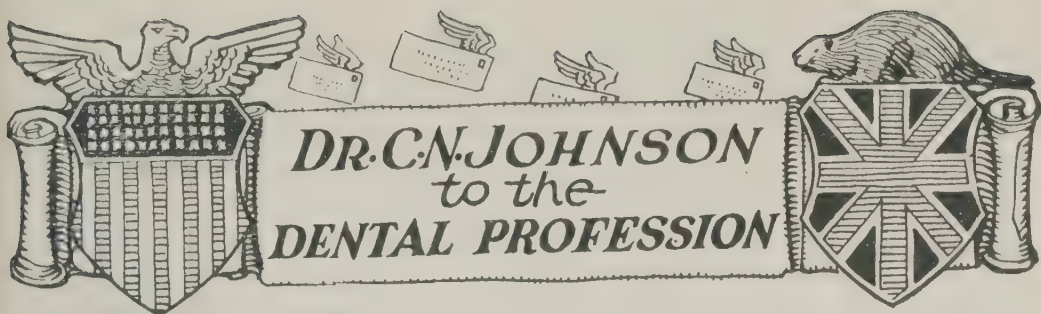
As the prevention of dental disease is the first aim of the service, and as the greatest field is in its application to children, the Dental Service endeavors to educate the children in the care of the mouth. Two hundred and eight classroom talks were given in September. These are made effective and interesting through the use of posters, lantern slides and picture films.

In addition to the regular reparative treatment in the 28 school clinics conducted by the Department, the dental officers occasionally find unusual conditions, and arrange for their early treatment or correction. A boy of 13 years, on examination, was found to have an epulis, a dangerous form of tumor which occurs in the mouth at the margin of the gums. A surgical operation was arranged for, the growth removed, and the danger of it becoming malignant averted. A girl of 12 years, who reported for examination last February, complained of severe headaches and eye trouble. The child had a wide space in the region usually occupied by the permanent upper left central incisor, and x-ray examination revealed that this tooth had not erupted but was still impacted in the jaw, and appeared to be held down by two supernumerary teeth alongside it. The case was referred to the surgical clinic of the Dental College, where the overlying bone and supernumerary teeth were removed. The tooth has now erupted into normal position, the headaches have disappeared, and the eyesight is greatly improved.

CAN ANYONE BEAT THIS?

Dr. L. R. Parr, while making his annual survey in the Toronto Separate Schools, came across an outstanding case of good teeth in the mouth of Ernest Rey, of Holy Family School. Ernest has a perfect set of teeth without a cavity or filling, and his record card has an "O.K. dental survey" marked on it for every year from 1920 to 1925. Although Ernest is only twelve years of age he is already in the Senior Fourth grade, and Miss Smith, his teacher, says he is a very bright pupil. Nature's gift of good teeth has given him a big advantage over his less fortunate playmates. When questioned as to diet, he was only sure of one thing—that he was not allowed very much candy.

It may not be so important to determine just where we are, but it is of the utmost importance to determine whither we are going.—*Coolidge.*



My Vacation

YES, I had a vacation. I am a thorough believer in vacations—I would never have been here to tell the tale if I had not taken them. It is with me a duty, almost a religion. And, like most city people, I want to get out in the country, “away from the madding crowd,” and the “ignoble strife,” and the “babble of many tongues.” I would rather listen to the chirp of the crickets, or the songs of the birds, or even to the senseless bawling of the cows down in the pasture lot, than to hear the clang of gongs, or the strident rattle of street cars over the hard steel tracks, or the incessant honking of automobile horns. When you think of it, the noises of the city are all artificial and all jarring, even to the jazz band on the street corners. If some observant individual will analyze the difference in the noises of the city and the country, and will study their effect on the nerves of humanity, it will be interesting reading. Without doubt it will be found that the city noises all tend to jar the nerves and irritate them, while the country noises for the most part sooth the nerves and rest them. Coming from mother nature as they do, they are a solace and a lullaby. They are never as harsh as the clanging, metallic sounds of the city. And so we poor, benighted residents of the larger cities naturally long to get out in the open, away from the clamor of the masses—away from the hardness of brick, and stone, and cement—out where we can look across green fields and over lakes, and into the blessed foliage of trees. We want a breath of pure air for once, and a view of wide expanses where the eye may rest and the nerves be refreshed and quieted.

And thus, of course, when I took my vacation, I went to the country, and, better than all else, I visited the old home where I was born; and somehow there is no place in all the wide world quite like this. There is a familiarity with the fields, and the roads, and the fences, and the trees—ah, those trees that each year wave me a more hearty welcome than the year before, and each year are more exquisitely beautiful. There is nothing in nature more wondrous than trees, with their deep masses of green for the eye to rest on, and their

fluttering banners stirred by the wanton winds—one minute sighing gently with tremulous and subdued emotion, and the next lashed into virile energy, their branches swaying back and forth in wild acclaim, defying the blast and entering hilariously into the spirit of the tempest. How firmly their roots are imbedded in the embrace of the earth to stand this terrible strain! Try to dig one out and see how far hither and yon they reach. Some of these trees are ages older than man, standing as silent sentinels marking off the highways and byways of life, and making the span of man's existence seem so infinitesimal. Once in a while some old patriarch, weakened by the invasion of an organism so small that it cannot be seen, will give way to the wind and come down with a crash. It is the inevitable in all nature; germination, growth, fruition, decay and death. But what a glory these trees lend to the landscape of the country—I must stop. If I give myself rein writing about trees there will be nothing else said about my vacation.

I am up early in the country, and the glory of the morning can never be imagined by those who have not seen it. Why some people will lazily lie in bed and let the best of the day go by I am never able to understand. This morning I was out at five, and there was never a sound of man in the air—nothing but the breathing of nature. The birds were twittering somewhat sleepily in the branches of the trees, and there was a subdued quiet in the air that was almost a hush—a hush before the breaking out of the activities of the day. The sun was beginning to beat down the barriers of the night and to open the vista for the benefit of man. All at once a clamor was let loose, a babel of many tongues. Up on the hillside among the tree-tops there was a convention of crows, and they were holding a caucus. Evidently it was far from harmonious—like most political caucuses. From the strident notes I am sure there must have been considerable profanity going on. I listened awhile with the keenest interest, but finally concluded to let them settle the matter among themselves, as I do all political caucuses.

After drinking in the sublimity of the morning almost to the point of worship, I came in to my little desk and watched from the east window the most glorious sunrise. Who can ever witness without a thrill the mammoth ball as it slowly and majestically mounts the heavens just over the tree-tops and scatters the darkness with its magic wand? To one who sees this miracle day after day it apparently becomes commonplace, but to the poor benighted resident of a city there is ever more and more the marvel of it all, and the never-ending wonderment and awe. Then the sunsets in the ruddy evenings, casting a halo of brilliant hues across the western skies, and sinking sublimely over the rim of the world into the restful night.

The phenomena of nature are never-ending in their delight, and blest be he who can get away from the tension of a city at least once in the year, and renew his energy and his youth in preparation for the toilsome tasks of urban life.

But I had intended writing of my vacation; my trips through the country in a new car over the old familiar roads; making a journey in a couple of hours that, in the good old days (which, thank heaven, are no more), would have taken the entire day with the jogging horse and buggy; my handclasp of old friends; my pick-and-shovel experience in excavating under the dear old house for a new concrete basement; my attacks on the table laden with fresh fruit and vegetables from the garden; my evenings out on the porch in the deepening shadows, with an occasional flash of light from a passing car; the music of the quartette with guitar, banjo, ukelele (uke for short), piano, and the melody of youthful voices; and last, but not least, the visits with the only surviving member of the older generation—now 93—listening to tales of other days when the country was new; when, instead of gas or electricity, it was the tallow candle; and, instead of the automobile it was the ox-team, and instead of the reaper it was the scythe, and instead of the modern thresher it was the flail—ah, those olden days they talk so much about—peace to their ashes, but may they never come again. I like the primitive in nature, but not in science and art, and the discomforts and disadvantages of those early days make no appeal to me.

I am finding it hard to tell the particulars of my vacation, and must ask the reader to fill in the details for himself, content in the fact that while past in reality my vacation will live with me in reverie through the coming months of stress.

C. H. Johnson

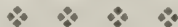
Canadian Dental Association



THE Halifax 1926 meeting of the Canadian Dental Association will be held on August 16th, 17th, 18th and 19th, 1926. Mark these dates off on your appointment book, and include the C.D.A. meeting in your holiday plans.

Officers of Canadian Dental Organizations

Oral Health will be Pleased to Receive Additions or Corrections that Directory of Names May be Kept as Accurate as Possible.



CANADIAN DENTAL ASSOCIATION

President : Dr. Geo. K. Thomson, Halifax, N.S.
Secretary : Dr. J. Stanley Bagnall, 34 Larch St., Halifax, N.S.

DOMINION DENTAL COUNCIL OF CANADA

President : Dr. W. M. McGuire, Simcoe, Ont.
Secretary : Dr. W. D. Cowan, Regina, Sask.

CANADIAN DENTAL HYGIENE COUNCIL

President : Hon. S. C. Mewburn, K.C., Hamilton.
Secretary : Dr. E. A. Grant, Toronto.

CANADIAN DENTAL RESEARCH FOUNDATION

President : Dr. R. Gordon McLean, Toronto.
Secretary : Dr. E. A. Grant, Toronto.

PROVINCIAL AND LOCAL DENTAL ASSOCIATIONS

BRITISH COLUMBIA

British Columbia Dental Association

President : Dr. J. Bricker, Vancouver, B.C.
Secretary : Dr. Fraser Allen, Vancouver, B.C.

Victoria Dental Society

President : Dr. Charles Harding.
Secretary : Dr. S. Youlden.

ALBERTA

Alberta Dental Association.

President : Dr. A. B. Mason, Edmonton.
Secretary : Dr. Leslie McIntyre, Edmonton.

Calgary Dental Society

President : Dr. J. M. Dixon.
Secretary : Dr. A. C. Steeves.

Edmonton Dental Society

President : Dr. Leslie McIntyre.
Secretary : Dr. Alex. Gemeroy.

Lethbridge Dental Association

President : Dr. A. S. Fumerton.
Secretary : Dr. L. T. Allen.

SASKATCHEWAN

Saskatchewan Dental Association

President : Dr. E. C. Campbell, Saskatoon.
Secretary : Dr. C. H. Weicker, Regina, Sask.

Moose Jaw Dental Association

President : Dr. H. E. Johnson.
Secretary : Dr. C. H. Wellington.

MANITOBA

Dental Association of Manitoba

President : Dr. J. F. Taylor, Winnipeg, Man.
Secretary : Dr. J. E. Morrison, Winnipeg.

ONTARIO

Academy of Dentistry, Hamilton

President : Dr. J. E. Johnston.
Secretary : Dr. J. D. Brown.

Academy of Dentistry, Toronto

President : Dr. W. G. L. Spaulding.
Secretary : Dr. S. Stuart Crouch.

Bay of Quinte Dental Society

President : Dr. F. T. Knight, Picton.
Secretary : Dr. R. W. Frank, Picton.

Brant Dental Society

President : Dr. W. W. Race, Brantford.
Secretary : Dr. H. C. Richards, Brantford.

Durham and Ontario Dental Association

President : Dr. G. C. Bonnycastle, Bowmanville, Ont.
Secretary : Dr. W. J. Langmaid, Oshawa.

Eastern Ontario Dental Society

President : Dr. H. R. Winters, Ottawa.
Secretary : Dr. S. G. McCaughey, Ottawa.

Elgin Dental Association.

President : Dr. Glenn T. Milton, St. Thomas.
Secretary : Dr. C. B. Taylor, St. Thomas.

Kingston Dental Association

President : Dr. A. W. Winnett.
Secretary : Dr. T. H. Renton.

Lambton County Dental Society

President : Dr. W. J. Bentley, Sarnia.
Secretary : Dr. W. A. Hartley, Sarnia.

London Dental Society

President : Dr. E. N. Fuller
Secretary : Dr. S. A. Moore

Ontario Dental Association

President : Dr. W. G. Thompson, Hamilton.
Secretary : Dr. J. A. Bothwell, Toronto.

Ottawa Dental Society

President : Dr. Lawrence Martin
Secretary : Dr. Lorne E. MacLachlan

PROVINCIAL AND LOCAL DENTAL ASSOCIATIONS—Continued

Ontario and Durham Dental Society

President : Dr. F. L. Henry, Oshawa.
Secretary : Dr. T. S. Tucker, Oshawa.

Stratford Dental Society

President : Dr. D. R. Nethercott, Stratford.
Secretary : Dr. J. A. Boyd, Stratford.

Thunder Bay Dental Association

President : Dr. F. A. Blatchford, Ft. William
Secretary : Dr. H. Quackenbush, Ft. William

QUEBEC

Quebec Dental Association

President : Dr. E. Charron, Montreal, Que.
Secretary : Dr. Denis Forest, Montreal, Que

Montreal Dental Club

President : Dr. F. H. A. Baxter, Montreal.
Secretary : Dr. A. L. Walsh, Montreal.

Mount Royal Dental Society

President : Dr. G. Franklin, Montreal.
Secretary : Dr. I. N. Pesner, Montreal.

NEW BRUNSWICK

New Brunswick Dental Association

President : Dr. G. Leighton, Moncton, N.B.
Secretary : Dr. F. A. Godsoe, St. John, N.B

St. John Dental Society

President : Dr. J. E. Edgcombe.
Secretary : Dr. Frank Boyaner.

NOVA SCOTIA

Dental Association of Nova Scotia

President : Dr. W. C. Oxner, Halifax, N.S.
Secretary : Dr. J. Stanley Bagnall, Halifax.

PRINCE EDWARD ISLAND

Prince Edward Island Dental Association—Secretary : Dr. J. S. Bagnall, Charlottetown.

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Prince Edward Island

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Dental Association, Charlottetown, P.E.I.

Nova Scotia

Dr. A. W. Faulkner, Registrar, Nova Scotia
Dental Board, 69 Gottingen St., Halifax,
N.S.

New Brunswick

Dr. Frank A. Godsoe, Registrar, Council of
Dental Surgeons, St. John, N.B.

Quebec

Dr. D. Forest, Registrar, Quebec Dental
Board, 187 de la Roche St., Montreal, Que.

Ontario

Dr. W. E. Willmott, Sec.-Treas., Royal
College of Dental Surgeons, Toronto.

Manitoba

Dr. H. J. Merkeley, Registrar, 706 Somerset
Building, Winnipeg, Man.

Saskatchewan

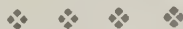
Dr. L. J. D. Fasken, Registrar, Saskatchewan
College of Dental Surgeons, Regina, Sask.

Alberta

Dr. Leslie McIntyre, Registrar, Alberta Den-
tal Association, Edmonton, Alta.

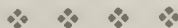
British Columbia

Dr. W. J. Lea, Registrar, College of Dental
Surgeons of B.C., Vancouver, B.C.



DIRECTORY of DENTAL MEETINGS & OFFICIAL ANNOUNCEMENTS

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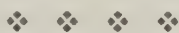


CANADIAN DENTAL ASSOCIATION—1926 Meeting at Halifax, N.S. August 16th, 17th,
18th, and 19th, 1926.

SEVENTH INTERNATIONAL DENTAL CONGRESS—August 23-28, 1926, Philadelphia, Pa.



This Department is Edited by
THOMAS COWLING, B.A., D.D.S., Toronto.



REMINERALIZATION OF THE ENAMEL AND DENTINE

ALTHOUGH there have been many opinions expressed as to the causative factors involved in tooth decay, all are agreed that, whatever the cause, the result of the ravages of dental caries is a tooth from which much of the mineral contents have been removed. To replace the lost substance would be to restore, in a large measure, the usefulness of the tooth. Can this be accomplished?

As an aid in this direction, Dr. G. Lind, of Amsterdam, in a paper read before the European Orthodontological Society, and reported in *The International Journal of Orthodontia*, makes these observations:

It may be true that a clean tooth never decays, but it is not always possible practically to keep the teeth absolutely and perfectly clean, so we are in need of a remedy which will not only assist us in the cleaning process, but which will also be able to remedy the defects caused by superficial decalcification.

It is a difficult thing to suggest a satisfactory remedy, because we have not yet an exact knowledge of the biologic processes which take place in the enamel and of the chemico-vital processes of dental decay. Progress is being made along this line, however, and the achievements of the past few years are especially notable.

Various methods of remineralization have been tried out by various investigators, and some have been very successful. This is especially true with respect to the prophylactic methods introduced by Andresen.

The principle involved in such processes of remineralization is to raise, by artificial means, the concentration of mineral salts which normally are dissolved in the saliva, and so raise the normal hardening process of the enamel, which process takes place by diffusion into it of the mineral salts.

As a laboratory experiment it is easy to show the possibility of recalcification of teeth that have not fully developed or have been superficially decalcified by artificial means. These experiments are equally successful when performed upon superficially decalcified teeth in the mouth.

Andresen recommends the daily use of a powder composed as follows: Acid tartaric, 90 grams; sol. gelatin alb. 10 per cent., 10 grams; mix and add phosphat. calcic. precip., carbon calcic. precip., carb. magnesia, 32 grams of each; mix and dry; then add salt, 32 grams; bicarb. soda, 112 grams. Keep in a bottle.

When this powder comes in contact with water or saliva, a formation of carbonic acid will immediately take place. This acid will dissolve a part of the different salts and the solution of the mineral salts in the saliva will become more concentrated. The undissolved part will form an effervescing mixture of salts, which is very effective as an agent for the removal of the mucous and calcarious deposits on the teeth. The carbonic acid has, besides its function as a dissolving agent, also an important stimulating influence upon the normal secretions of saliva and on the normal blood circulation in the gingiva, combined with antiseptic properties, all being properties of importance for a rational prophylactic tooth-powder.

Dr. Lind has found, as the result of careful observation, that the daily use of this powder will give excellent results, especially in the treatment of superficial decalcification of the enamel and sensitive denuded dentine. He has also found it of value when treating gingivitis and pyorrhea alveolaris on account of the stimulating influence upon the soft tissues.

Where there are present conditions such as stomatitis ulcerosa, or other similar ulcerous diseases of the mucous membrane in the mouth or the gingiva, it will be found that the carbonic acid is too irritating.

The powder should be carefully made, and the ingredients thoroughly dried, otherwise a slight explosion may take place when the bottle is opened.

FORMALDEHYDE IN ROOT THERAPY.



IN the April issue of *Dental Cosmos*, Dr. A. B. Donawa deals with some of the properties of formaldehyde that are of especial interest for dentists.

It is found that formaldehyde, even in dilute solutions, is one of the best preservatives of tissues. It is also efficient in hardening tissues. Both of these properties are of value in the treatment of pulpless teeth.

Every effort should be made to avoid leaving an excess of formaldehyde either in solution or in a gaseous state in a root-canal, because of the cellular irritation which frequently follows its use even in combinations with other agents.

The chief objection to the use of formaldehyde is due to its irritating properties. This, says Dr. Donawa, may be due mainly to its well-known polymerizing property. If a dish containing a solution of formaldehyde be placed in a room at ordinary temperature the solution will evaporate slowly and there is left a white, solid substance—para-formaldehyde. This substance is practically the same as formaldehyde, but possesses a molecular weight about three times as great. If this new substance be subjected to heat, formaldehyde gas is evolved. Collect the gas and pass it into water, and we again have a formaldehyde solution (formalin). It is possible that this exact reaction does not take place in a root-canal, although the only difference in condition is that of temperature and moisture. It has been suggested that the possible advantages arising from polymerization may be overcome by substituting a non-polymerizing formaldehyde, but this does not seem practicable, because the irritation is certainly due to the gas evolved and not to its polymer.

The method suggested consists of liberating formaldehyde gas from its aqueous solution by the application of warm air. The liberated gas, on account of its affinity for moisture, reacts with the organic contents of the tooth root, both debris and tooth structure. Bacterial life is destroyed and the putrefactive contents of the canals are rendered impotent. The tissue acted upon loses much of its tendency to decompose if nitrogenous substances are later introduced. If the agent be confined to the tooth root there can be no irritation, regardless of the concentration of the solution used. But since there is no objective symptom of knowing when the reaction between the formaldehyde and the organic tooth is complete, it is a good practice to continue the application until the patient experiences a slight sensation in the apical area. It is best, therefore, to use dilute solutions. The irritation is due to the action of the gas upon healthy cellular tissue.

The use of warm air to liberate the gas from solution is recommended for dental operations, because the amount of gas so liberated can be more accurately determined. The apical irritation can be reduced to a minimum through the use of this method.

What have I contributed to the general knowledge and welfare of the dental profession, or have I been satisfied to take what the hard workers of the profession have offered and given nothing in return.—*Edmund Kells, D.D.S.*

Oral Health

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EDITORIAL

What Constitutes Malpractice ?

MALPRACTICE in law as applied specially to physicians and dentists, is improper treatment by a practitioner, whereby the patient is injured. To put it in another form, it means a default in one or more of the legal requirements of skill, care and judgment.

Before any case of alleged malpractice can hope to succeed, at least three essential facts must be proven: 1st, injury to the patient must be shown; 2nd, that such injury was the direct result of the operation or treatment; and 3rd, that the dentist did not exercise proper skill, care or judgment.

Thus we see it is not sufficient to prove that there had been improper treatment, or to prove alone that the patient was injured, but it must be clearly shown that the injury complained of was the direct result of the treatment, and that such treatment was lacking in one or more of the requirements of skill, care and judgment.

The degree of skill, care and judgment that the dentist must

exercise in order to escape liability for damages is a matter of real importance, but fortunately upon this the courts are in recent years almost entirely in accord.

All agree that in order to escape liability the dentist is not compelled to exercise the highest degree of skill. He, like the physician, does not and should not contract to cure a patient of the ill complained of, but the law only requires him to exercise due or ordinary skill in the treatment of his patient.

Again, the law demands of the dentist that he shall use not only proper skill, but that he exercise due care in the treatment of his patient.

The question arises at once, what is meant in law by proper skill and due care in such treatment?

The degree of skill required cannot and is not determined in exact units, but only in terms which necessarily vary in accordance with time and location.

The test generally applied by the courts to-day is: did the dentist possess and use that reasonable or average skill ordinarily possessed by members practising in similar localities at the same period of time? Such a test does not demand of the dentist practising in an outlying district, having few professional advantages, that he treat his patients with the same degree of skill as possessed by the average dentist practising in a large centre surrounded by innumerable opportunities for advancement. Quite properly the law makes a distinction here and says that the dentist in the large centres must measure up to the advanced standard of practice in such centres, and the dentist not so fortunately situated as to opportunities shall be required to measure up only to his lesser opportunities.

Again, in determining whether there has been a lack of proper or due care exercised by the dentist, we find also that in law *care* is a relative term. From a legal standpoint due or proper care would mean attention given according to the seriousness of the case in hand.

For example, a physician called upon to treat a patient suffering from an ordinary cold, with no indication of further complications, would not be expected to be as frequent in his visits or as exacting in his instructions as he must be if called to treat a patient threatened with pneumonia.

The legal test in all such cases is what would an ordinary, careful and prudent physician or dentist in a similar locality have done under the circumstances?

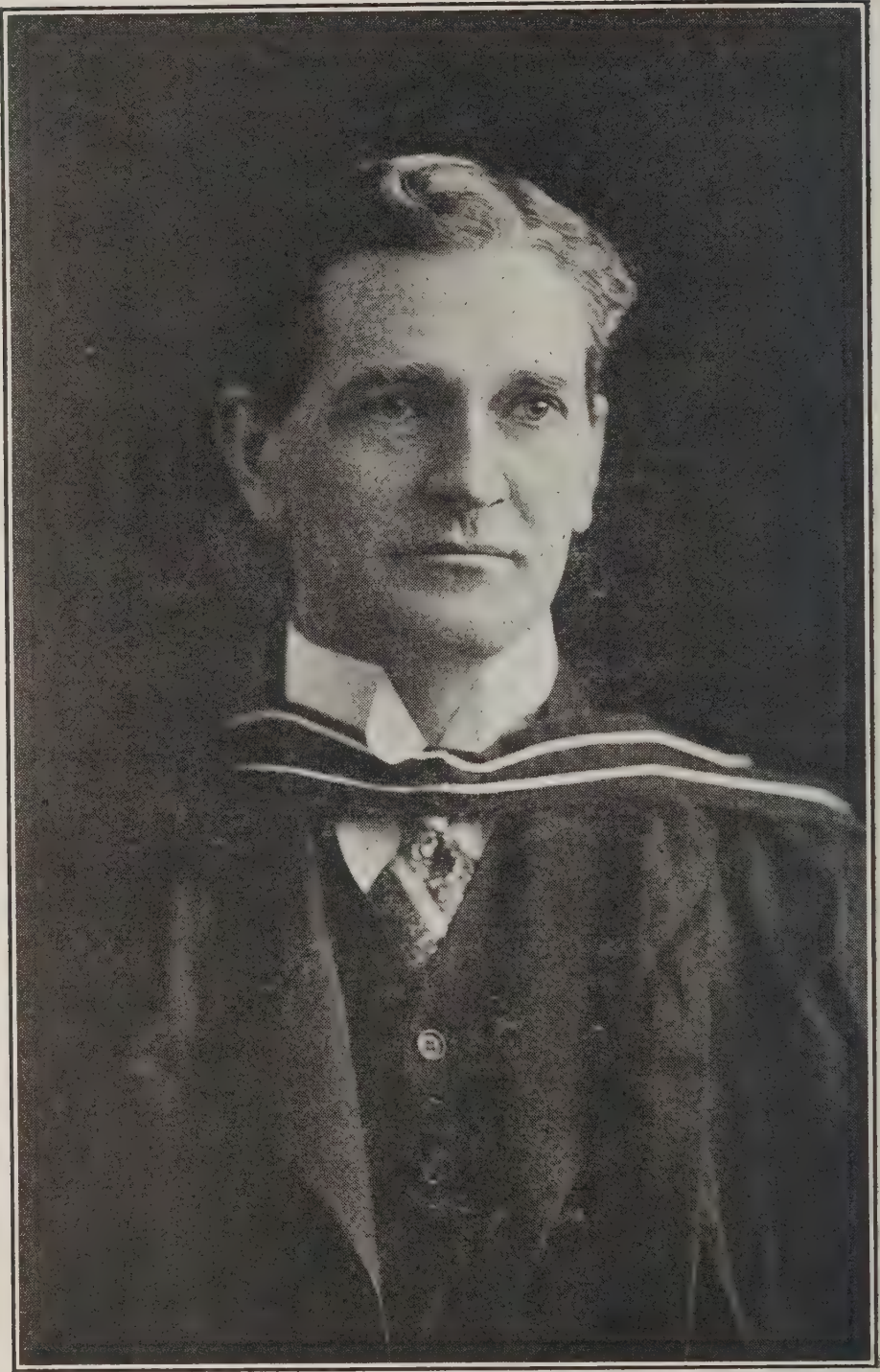
In short, when a dentist accepts a patient and undertakes treatment, he thereby legally undertakes to exercise such skill and care as we have tried to outline, and having done that much at least, he is legally absolved from any damages, whatever the outcome may be.

R. G. McL.

Wisdom

*I'll put off sorrow
Until to-morrow.
To-day,
I will be gay.
To-day, I'll sing.
Not questioning
What fate for me awaits
Beyond the golden gates
Of yonder sun.
To-day, at least, I'll shun
All thoughts of ill,
Anxiety, loss and worry; and I will
Forget the world holds care
And only see the bright and fair.
To-day,
I will be gay;
There's time enough for sorrow
To-morrow !*

—IDA M. THOMAS.



DOCTOR F. H. A. BAXTER
President, Montreal Dental Club.

ORAL HEALTH

*A JOURNAL THAT STANDS FOR THE OUNCE OF
PREVENTION AS WELL AS THE POUND OF CURE*



Vol. 15

TORONTO, DECEMBER, 1925

No. 12

Proceedings of the Fall Clinic of the Montreal Dental Club, 1925



PROMPTLY at the scheduled hour of 9 o'clock on Thursday, November 5th, registration began at the Mount Royal Hotel, and was carried through with such despatch that visitors from Ottawa to Halifax, and from New England, as well as local dentists, to the number of over a hundred, were ready to greet the Master of Ceremonies, Dr. Baxter, before the allotted time. Dean A. W. Thornton followed with a very happy speech of welcome.

Dr. Geo. B. Winter, St. Louis, Mo., gave a very helpful talk on his method of lever technique in Exodontia, illustrated with slides. Thos. B. Hartzell, M.D., D.M.D., Minneapolis, spoke on the treatment of pyorrhea simplified, in which the use of some specially designed tooth brushes formed an important part. Dr. J. Lowe Young, New York City, read a paper and showed some slides on his method of treatment in Orthodontia. Fixed Bridgework by a special one-piece casting technique was given by Dr. D. L. Woodworth, Chicago. In the evening Herman Osgood, M.D., D.M.D., Boston, gave a very helpful illustrated lecture on Radiology. Friday morning Dr. Felix French, Ottawa, gave a very stimulating talk on Full Denture Construction. Following Dr. French's talk groups were formed and the clinicians explained their subjects in detail.

Everybody relaxed at a banquet held on Friday night at the Mount Royal. Speeches of good-will and good-fellowship, music by Rex Battle, Sleepy Hall and others, helped to make it a very jolly evening.

The clinics were completed on Saturday at noon and the first Fall Clinic was informally brought to a close by a visit to the McGill Stadium to see Varsity win from the local University.

Officers of the Montreal Dental Club, under whose auspices the Fall Clinic was held, are:

President—Dr. F. H. A. Baxter.

Vice-President—Dr. A. N. Jenks.

Secretary-Treasurer—Dr. W. C. Bushell.

Executive Committee—Drs. A. L. Walsh, J. C. Flanagan, F. A. Stevenson and D. P. Mowry.

CLINIC COMMITTEES.

Publicity—Chairman, Dr. Geo. S. Cameron; Drs. A. L. Walsh, Fred Bradley, A. N. Jenks and Jake Rubin.

Entertainment—Chairman, Dr. C. F. Morison; Drs. A. W. McClelland, F. L. Wilkinson, H. Ross Cleveland, F. A. Stevenson, and J. Berwick.

Clinic Management—Chairman, Dr. J. S. Dohan; Drs. W. C. Bushell, J. C. Flanagan and D. P. Mowry.

Exhibit—Chairman, Dr. H. Ross Cleveland; Drs. Ralph Edmison, J. S. Common and H. V. Driver.

Finance—Chairman, Dr. F. G. Henry; and Dr. W. C. Bushell.

* * *

Full Dentures

FELIX F. FRENCH, D.D.S., OTTAWA.

 HERE have been occasions upon which I have felt disposed to sympathize with speakers who found themselves introduced in somewhat eulogistic terms, and occasions upon which I have been somewhat similarly embarrassed, but since reading Mr. Stephen Leacock's article, which was published recently, on the subject of "After Dinner Speakers", my sympathies now rest with the Chairman rather than with the individual whom he finds himself called upon to introduce. I note that some of you are familiar with the article to which I refer. For those of you who are not, I might say that one of the illustrations pictures the Chairman with a number of others seated at the head table, also the speaker for the occasion, a rather insignificant looking chap with a pair of heavy black goggles not unlike my own. Just beneath this illustration, in large type, was printed "What the Chairman Said" and "What the Chairman Should Have Said". What the Chairman said went something like this: "Gentlemen, we have the honor and privilege of having with us to-day a very distinguished and eloquent, and so on, and so on——". What the Chairman should have said went something like this: "This insignificant little runt is the only thing that we could get for the occasion. He is a bore to listen to and I hope you will be patient."

Your Secretary informed me that my remarks to-day were to be in the nature of an inspirational address, so I took down my encyclopædia and found that an inspiration is something which we receive from above, as, for instance, our conception of the Bible being inspired; and that let me out. Another interpretation of an inspirational address was one that would arouse man to action, as, for instance, on the eve of a great battle; or a body of soldiers about to go over the top, and as the zero hour approaches someone steps in and with well-chosen words instils courage and confidence and a determination to do or die; and that let me out. The task assigned to me was to deliver an inspirational address on the subject of Full Denture Construction, and being already let out twice I decided to compromise by telling a little story. Now this little story is not nearly as funny as it is true. It has been said that truth is never enforced except at the sacrifice of those who advance it; at least they expose their inherent imperfections if they incur no other penalty,—but nothing would be done at all if a man waited till he could do it so well that no one could find fault with it. This, gentlemen, is my only defence for telling this little story. As brevity is the soul of wit, I am going to tell it briefly first. It is simply this: The problem of full denture construction has been solved. I hope the day is not too far distant when we will be able to say as much for other problems in dentistry as, for instance, that of the pulpless tooth.

Now, to appreciate the solution of this problem, it is necessary that we enlarge a little upon our story. It is difficult for men entering the profession to-day to realize the depth of degradation to which plate making had fallen at the beginning of this century, or how hopeless appeared the prospects of ever developing a scientific and professional technique for denture service. There had once been a group of fine technicians who made plates that were carved from solid blocks of ivory or bone by laborious and tedious methods. We have no records of how these plates fitted. This we do know,—that the labial and occlusal surfaces were very finely carved. This toilsome method was later supplanted by the use of plates swaged from gold or silver, the teeth fastened to backings which were soldered to the metal bases by the use of an alcohol lamp and mouth blow-pipe. Obviously the difficulties involved in doing this work deterred those who were not skilled mechanics from undertaking it. The introduction of vulcanite, however, seemed to offer a simple and easy method. We now know that the successful use of vulcanite requires the application of a technique which is quite as exact and scientific as that involved in making metal dentures, but this was not recognized for more than fifty years after the first use of vulcanite, and, blissfully unconscious of this fact, thousands of dentists who could not make good metal dentures hopefully undertook making them of vulcanite. The better forms of technique in general use

were such as now appear unscientific, though certain details which were later assembled into a complete technique were being developed by isolated workers who, unfortunately, did not receive the attention they deserved and whose methods were followed by few. Little or no attention was paid to the study of mouth conditions, or mouth preparation. In some cases it was a physical impossibility to construct dentures, after the teeth had been extracted, without surgical interference which was neither understood nor practised. Impressions were taken with large, heavy metal trays filled to the brim with soft plaster and squashed to place with the patient's head tilted forward to keep him from being strangled. Mush bites were the order of the day, and plaster blocks or hinge articulators were used with no regard for mandibular movements. In the face of such adverse conditions, it is not surprising that the failures greatly outnumbered the successes. Dentists became discouraged. When they chanced to succeed they did not know what factors contributed to the success of the case and, therefore, could not improve their technique; and when they failed they knew not why nor where to look for cause of failure. Many of them who were conscientious dentists discontinued full denture work altogether. Public appreciation of dental service was very low. So deplorable did conditions become that in certain sections of the country there sprang up a sentiment in favor of divorcing denture service from the profession altogether as something beneath the dignity of the profession, and leaving it to the mercy of any who cared to practise it.

We can readily understand, therefore, why fixed bridge work was welcomed with open arms and attained such tremendous vogue; until the year 1910, when Sir William Hunter, in this very city, delivered his ultimatum to the profession (Septic Dentistry). Soon afterwards, when it was realized that Sir William was right, there began that orgy of slaughtering teeth, until to-day the question is where to stop. With no alternative but denture restorations, a new impetus was given to the study of the full denture problem and one by one the basic principles have been laid down until to-day it is our proud boast that the problem has been solved.

When I say the problem has been solved, please do not interpret this statement as meaning that an ideal result can be obtained in every case. I mean this,—that each case lends itself to a certain result, with a knowledge of the principles as we have them to-day we can estimate pretty closely just what that result may be, and we have at our disposal techniques which enable us to achieve that result. More than this cannot humanly be done.

Now, how did these basic principles become known? By the mistakes that were made. You remember how, some years ago, certain

individuals claimed that when the natural teeth were lost there was no further function for the alveolar process. They said, let us predetermine nature by cutting it all away and thus save the patient the unnecessary expense of having successive dentures made. Result, many mouths were so surgically ruined that they could not be prosthetically restored. There is a further function for the alveolar process, and if properly constructed dentures are inserted soon after extraction, while the blood clot is still holding in the sockets, they supply the stimulus which brings about a deposition of lime salt in the blood clot and we get a formation of new bone in the tooth socket rather than atrophy of the socket wall.

In my own limited practice I have cases of one, two and three years' standing, so constructed and still doing service. Age is a factor to be considered in this regenerative process.

We know to-day that it is advisable to leave all the process we can possibly leave, removing only that which may be necessary for esthetics, providing doing so will not impair the stability of the denture, the elimination of undercuts and to provide working space.

With regard to impression taking, you remember how spectacular it was a few years ago to see dentures so tight that they could hardly be dislodged with a crowbar. Result, tissue atrophy due to interference with circulation of the blood through the tissues and the dentures became loose. Now we know that the requirements are adaptation to the tissues without interference with circulation and maximum extension without displacement of the border tissues so that we may have valve seal and the creation of a temporary partial vacuum when the denture is slightly dislodged. We have artificial teeth to-day which closely resemble, or can be made to closely reproduce, the natural, and we have a basis of arranging them which is definite and productive of pleasing esthetic results.

Next we come to occlusion and articulation. This has been the hardest nut of all to crack. Men have wrestled with this problem right down through the years and it makes a very interesting study to go back and review the history of the dental articulator from the time of the plaster block extensions, with no provision for movement, the hinge providing opening movement, then the instrument giving forward movement, then downward and forward, then lateral movements, the various arbitrary instruments, to the fully adjustable instrument of the present day,—each instrument being simply the expression of that man's conception of mandibular movements.

In no department of dentistry has there been the bitter fighting, the rivalry, the antagonism, the opposition, that we find in the articulator field,—many expressing opposite views, so that all could not be right. Many false prophets have been in this field, with the result that there is

much confusion among us, and if in the discussion of this subject I can remove some of the mystery and dispel some of the fog, I feel that I am rendering you a greater service than by any technique which I might demonstrate. I am not going to bore you with detail in discussing this subject itself, because discussion is useless until such time as the profession accepts a definite nomenclature, so that we can talk in the same language and that when we say something it means something definite, something concrete. When I tell you that men have argued for two whole days on "What is Central Occlusion?" you will understand what I mean. That is the reason why practically all of Hanau's papers are definitions. His definitions are gradually being accepted by the profession.

Now, what is the situation to-day? Scattered from coast to coast are dentists who, like myself, have no axe to grind, no commercial interest, no desire to steal unmerited glory; who have studied this problem and the work of the various investigators; whose only object is to achieve the best possible results for our patients; who have accepted Hanau's findings and deductions as correct,—are using his instrument and applying his laws of occlusion and getting results that we never got before. And what is more, we are coming through and getting results in cases where his opponents are falling down. That is clinical evidence.

What of our dental institutions? The Northwestern in Chicago, Dental College in Pittsburg, in Louisville, in Buffalo, in Portland, Ore., in Southern California, and others, have complemented their teachings by the addition of Hanau's Findings and Deductions. Just last June, one of the most prominent prosthetic men in the United States read a paper on Occlusion at Los Angeles. It was discussed by Dr. Rothchild, Instructor of Prosthetic Dentistry at the University of California. His discussion is so concise, and so pictures the situation in which you men find yourselves to-day, that I cannot do better than read part of it to you.

"I am happy to comply with your request to discuss the paper of your distinguished essayist. I appreciate having received a copy of his paper to prepare my discussion. It was at a time when I was engaged in intensive study of the subject of Occlusion.

"Before proceeding let me state: I am not speaking in any official capacity, but am expressing the personal views of a dental investigator, who had been groping around in the dark behind high walls of fanciful theories. Only recently have I been shown a breach into the open, where I perceived the light of real progress.

"During the last few years, I have studied and worked with some of the leading disciples of the Gysi Simplex and Monson Spherical Theorists, and had frequent exchange of opinion with followers of the House-Hall, Needles, Wadsworth and other arbitrary methods, and occasionally also came across the 'honest-to-goodness' straight line advocates.

"Confronted with their diverting and confusing contentions, and

after my disappointing experiences, I knew not where I stood; except, I realized that our problem of occlusion had not yet been satisfactorily solved.

"Then something happened.

"I attended the fifty-fifth annual convention of the California State Dental Association, the pass-word of which was "occlusion," as it is at your meeting here. In the clinics were shown and demonstrated works I was particularly interested in. They were carried out in accordance with conventional theories and techniques.

"This work was severely criticized and openly challenged by Mr. Rudolph L. Hanau, of Buffalo, N.Y., much to my amazement and consternation.

"His criticisms, however, of the cases seemed so logical and well-founded that they could not fail to arouse the interest of those seeking further enlightenment.

"Some of the restorations shown at the clinics were the result of weeks of work, the pride of the clinicians, and a delight for the visitors, of which I was one.

"In these cases, Mr. Hanau pointed out the defects of occlusion, and it gradually became evident that we had failed to recognize the very fundamentals involved in the establishment of balanced occlusions.

"Since that day I have intensively studied Mr. Hanau's works, and their practical application, and had the opportunity to check up on dentures made to occlude according to his requirements. For results observed and those obtained with my own hands, I accept Hanau as correct."

It has been said that no two of these articulator experts agree. If there is any man who should be jealous of Hanau's work, that man is Dr. Gysi, because Hanau got his true conception of the full denture problem from Gysi. Now let us see what Gysi has to say concerning Hanau's work:

"I have read the paper that R. Hanau is going to read at your meeting at Louisville, and have found that the conclusions he arrived at very much coincide with those of my own personal investigations and those of my associates, at the Dental College at Zurich, Switzerland. Hanau and my school have worked independently of each other, and it should not be a surprise that similar thoughts are expressed in different terms. Only the careless reader may conclude that our findings differ in principles. I can assure you that while reading Hanau's paper and analyzing it I could find nothing that I would not approve of at present. In many points Hanau has arrived at advanced results which to me appear quite logical.

"I expect that upon closer investigation and checking we, in Zurich, shall be able to confirm his findings.

"Some of my personal work, still in the hands of the publishers, and the recent investigations by my associates, will soon be published. Both will prove what I have just said.

"Our understanding of the problem of articulation now is such that the dental profession can safely accept it, and by so doing, may obtain marvellous results.

"Of course we should not dream of a panacea for all prosthetic ills, yet it may be assumed that in the present status of prosthetic knowledge the dentist should be able to render better and safer service to a denture patient, than a physician ordinarily can to a patient suffering a systemic disturbance.

"Unhappily, the contrary is the case as regards the prosthetic services rendered by the large majority of dentists.

"I sincerely hope that the National Society of Denture Prosthesis will assume the leadership in advocating modern prosthetic methods and contribute to the understanding and proper application to such an extent, that even the non-specialists can take them up and find that in the end good scientific work is more profitable than the use of most of the present unscientific methods. As in other lines of human endeavor many false prophets did and still will crop up, adding confusion among us.

"As a group of earnest workers we should already have arrived at an understanding of the fundamental principles of articulation and their application, if the hindrances of all kinds had not been so great."

You can readily see from this, gentlemen, that Gysi and Hanau are absolutely agreed in principle and we have to thank them for the solution of the articulator problem. Hanau has given us three considerations: First, resilient effect of the tissues. Second, overprotrusion in the instrument which is necessary because of this resiliency. Third, the difference between condylar inclination in the patient's head and condylar inclination in the instrument. These are the advanced results to which Gysi refers.

When any man renders extraordinary services of scientific and professional value, does it not behoove the profession so benefited to reciprocate by conferring recognition and honor? Hanau has rendered extraordinary original services to the dental profession in the solving of the full denture problem. Dr. Cummer, of Toronto, has rendered extraordinary original services to the dental profession in the solution of the partial denture problem. There is an excellent opportunity for our Canadian dental institutions to gain distinction by being the first to recognize the work of these men. Now, while the full denture problem has been solved, we have another problem on our hands.

Unfortunately, to achieve the maximum result in each case by the application of these principles, requires the expenditure of time that the general practitioner cannot give and involves an expense that the average patient cannot pay. There will always be a demand for average denture service. If the general practitioner does not do it, somebody else will. No few men devoting their time entirely to this work can commence to construct all the dentures that are to be made. It will always constitute a part of general dental practice. How then can the general practitioner render a better denture service to his patients without the expenditure of any more time and without increasing the cost to the patients? That is our problem to-day.

There is but one and only one solution, and that is that they have a better knowledge of the basic principles underlying the work.

When I graduated some twenty years ago,—and there are men in this room who were in college with me,—we were taught principles in operative dentistry and a technique in full denture work.

I do not know what the situation is to-day but have no hesitation in saying: teach the principles that the operator may use his head as well as his hands.

In operative dentistry, take, for instance, cavity preparation. We are taught: removal of decay, convenience form, resistance form, retentive form, extension for prevention, etc., all basic principles. Underlying every step in full denture construction are sound basic principles, with a knowledge of which the operator can go to the mouth, where he finds an innumerable variety of denture cases, and he goes about his work intelligently. The Executive instructed me that my presentation was to be for the general practitioner. In the clinic, which it is my privilege to present to you, it is my intention to discuss principles, in the hope that you may take home something which you can apply on the very next denture case you undertake to build.

Experience in the past has been that men have attended prosthetic clinics, and gone back to their offices to work in the same manner the next day as they did before.

This is perhaps a new departure in presenting full denture construction, and whether I succeed or fail in helping you, be good enough to express yourselves that I may profit by your experience. Thank you.

* * *

Fixed Bridgework Complete in One-piece Casting

D. L. WOODWORTH, D.D.S., CHICAGO.

N presenting this method of constructing fixed bridgework, I should not be greatly astonished if a certain amount of skepticism would be in evidence. Since the earliest days of casting, there has existed a fixed idea in the minds of the profession that individual castings larger than a good-sized inlay were physically and mechanically impractical for reasons of distortion on account of shrinkage—attributed to the larger bulk of metal in the larger castings. With the earlier casting technique and materials used, such was undoubtedly the case.

That we have been able, by means of proper materials and technique, to reduce this shrinkage factor to the point where it has no practical significance is the main reason for my appearance at this meeting.

It seems to me that as active practitioners of a very useful calling, our problems, for the most part, are problems of a *practical* nature. I have no quarrel with the ultra-scientific viewpoint, but I do believe that the practical side of dentistry means vastly more to the average practitioner. I feel sure that every one of you can take this work into your office and actually utilize it and make it pay you dividends, both economic and otherwise. If the work that I am exemplifying is not of such a nature that you can take it into your office and use it to the mutual advantage of the patient and yourself, it matters not that it might be 100 per cent. perfect from the scientific viewpoint,—I have merely wasted your time and my own.

I started making fixed bridgework in one piece castings about two and one-half years ago. I started with the smaller units and gradually extended their scope until to-day I am making them to include as many teeth as would ordinarily be deemed advisable in any single unit. I am more enthusiastic about the actualities and possibilities of this method to-day than ever.

I can conceive that this technique, so radically different from any now existing in this field, may seem, to the uninitiated, to be difficult and exacting and to serve to complicate matters rather than to simplify them. However, I am glad to say that upon more intimate acquaintance with it, you will find it delightfully simple if you follow the technique carefully.

The simpler any product can be made successfully—the more intermediate steps that can be eliminated—the better it fits into present-day practices. That this method, once understood, is simplicity itself seems to me to be fairly obvious.

The advantages of the one-piece cast method of making fixed bridgework will readily occur to you. To begin with, the entire case is completed on the model from one main impression—thus lessening the number of visits on the part of the patient. There is also less time spent at the chair in the construction of the individual abutment pieces once the preparation of the tooth has been completed. The possibility of abutment pieces getting out of their proper relation to each other in the various steps incident to removing them in an impression, subsequent investment and soldering, is removed. I am sure we have all had the doubtful pleasure of sawing assembled cases in two and taking another go at it.

The one-piece cast method obviates this contingency and furnishes us with a finished product that is one solid, homogeneous mass of metal, that, properly made, can never become disunited in the mouth, or elsewhere, under any conditions it may properly be called upon to meet.

I am convinced that the exactness of fit of abutment pieces, whether they be inlays, three-quarter crowns, full crowns or Richmond crowns,

into their respective niches in the teeth, together with a more perfect counterpoise of one abutment against the other, makes for decidedly better retention of the case. The nearer we approach the ideal in fit and relation of abutment pieces the greater is the frictional retentive force enhanced between the abutment pieces and the cavity walls.

In the determination and selection of types of abutments to be used in any individual case—indeed, in the preparation of the teeth for the reception of the various types of abutment pieces—the principles and practice of present day, assembled fixed bridge work largely govern in this method as well.

Obviously, errors in preparation, such as faulty alignment, either horizontally or vertically, will result in a discrepancy of fit, whatever method is used. Whether the case be assembled or cast in one piece, if the preparation in the mouth leaves something to be desired, so will the finished case leave much to be desired. Neither can you expect cases to be retained *en situ* where ample mechanical retentive forms have not been considered.

Let us take up briefly the indications for fixed bridgework. I will state at the outset that it is my belief that in the restoration of any considerable number of missing teeth in the same arch, the method of choice would be a properly designed removable case. However, there are innumerable cases presented where one, two, three or sometimes more teeth are missing, wherein cavities or restorations already exist in the teeth to be used as abutments. In these cases I think that fixed work is indicated. In practically all cases where a single anterior tooth is gone, even with adjacent abutment teeth intact, fixed work would be my choice. There are also a number of cases where the patient has a preconceived dislike for anything but fixed work.

Having decided upon what types of abutments are to be used, and having prepared the teeth for their reception, accordingly, we are ready for the technique proper. It might not be amiss to say at this time that a little extra time devoted to the refinements of cavity preparation, such as the disking and polishing of margins, etc., the rounding of all sharp angles into more graceful and flowing lines, will add greatly to your satisfaction with the finished piece. Above all must we give attention to parallelism. This can best be secured in inlay preparation by slightly exaggerating the outlines of the cavity walls so that the orifice of the cavity, viewed from directly above or below, as the case may be, presents somewhat the appearance of an inverted pyramid, greatly modified. With the full crown preparation, the stump presents the opposite aspect.

TECHNIQUE.

First Step: Festoon and trim for occlusion a thin copper band slightly larger in circumference than the tooth upon which it is to be used.

Second Step: Fill band with Kerr's inlay wax which has been warmed to proper consistency and push down over tooth and have the patient close

the teeth. Remove and examine to see if you have a sharp impression. If not, add more wax, warm, and repeat. Ditto with other abutment. In the case of full crowns, make an effort to place your band so that the peripheral wax is as nearly uniform in thickness as possible.

Third Step: Take bite with soft wax, this time with bands and inlay wax in the mouth, and remove bite wax. Solvite should be mixed somewhat thinner and stirred longer than ordinary plaster. Add a pinch of salt to hasten setting. Use cold water.

Fourth Step: Make sure that your bands containing impressions are in their proper positions on the teeth and take impression in a crown and bridge tray in solvite, including a sufficient number of approximating teeth mesially and distally to abutments. Remove tray when impression material has set, and with forefinger break away buccal or labial portion of the material. Then carefully remove remainder of impression. If the band with wax impression fails to come with main impression, remove and place in proper position and assemble the fragments of the impression and wax to tray.

Fifth Step: Paint impression with any thin separating fluid, taking care to keep it away from the wax portion. I do not advise film-forming separating fluids for reasons of convenience.

Sixth Step: Mix Loheet No. 1 investment relatively thick, spatulate carefully and make sure all bubbles have been dissipated. Pour impression after first teasing the investment down into the wax portion and jarring to remove bubbles.

Seventh Step: After investment has set thoroughly (about 30 minutes), cut and break away (do not boil) impression material. Place wax bite in proper place on model and articulate.

Eighth Step: Remove wax bite (do not heat enough to disturb, inlay wax on model). With a knife edge, stone or small round bur, carefully split copper band, taking care not to cut into model. Then carefully peel same off. You are now ready and have everything necessary upon which to construct the entire case.

Ninth Step: We are now ready to carve the abutment pieces. In the case of inlays, it is advised to carefully slice or scrape off wax, beginning at the occlusal aspect and cutting down until you can see the white summit of the cusps in the investment through the wax. From this point you have landmarks to guide you to complete the entire carving. By burnishing the wax with china silk you can impart a fine finish to the wax. To those who are not familiar with this method, it is advisable to have a slight excess at margins until you get the knack, as they can be easily polished off in the finished work.

In the case of full crowns, you can carve to proper contour and height from your bite and model. It is well to have a slight excess of wax at the cervical periphery, as this can be later dressed down at the lathe. Having both abutments carved up, necessarily in their proper relation to each other, we are ready to add the intervening dummies. It should not be necessary to dwell very long on this point, as the technique is fairly obvious. I am inclined to think that Steele's facings offer the most convenient and practical medium for this purpose. Long pin facings can also be used with carbon points. Ready made gold backings may be used, or you can wax up your own backings. In case ready made backings are used, if there be any doubt about the union between your casting and the backing, it would be prudent to tack the same by means of 18 K. solder. This is but the work of a minute, as it can be done without investing. The occlusal portion is waxed up and carved to harmonize with the requirements of the case.

Tenth Step: Cut the case off the model, attach a wax sprue sufficiently large, remove facings and immerse in cold water until model is saturated.

Eleventh Step: Now paint the model, wax and sprue, with a thinner mixture of the Loheet No. 1 investment and set aside until this is set.

Twelfth Step: Fill a suitable sized casting ring full of Loheet No. 2 investment designed for this purpose, which has been mixed to the proper consistency, moisten the painted case and drop it down into the flask, leaving the wax sprue sticking through, and allow the investment to set. There is no objection to adding salt to this No. 2 investment to hasten setting. As soon as investment has set, cut off the investment level with the ring, cut out a hopper in the investment with the wax sprue serving as a centre, and

place ring hopper side down on radial wax eliminator with flame turned on fully. As soon as the water has disappeared from the bottom of the flask (inverted), remove and place in electric oven at low heat 300° for an hour and a half to three hours, dependent on the size of the flask. There is no objection to leaving it longer, as no harm will come to your mould at this low temperature. We merely want to be sure we have dissipated the moisture.

Thirteenth Step: The cases are cast with a centrifugal casting machine. The flask is secured in the machine with a double thickness of asbestos foil, through which a round opening slightly smaller than the periphery of the hopper in the flask has been cut, interposed between the top of the flask in its proper relation to the hopper and the frame of the casting machine next to the crucible. This insures you against throwing casting gold around the room, etc.

The casting metal is heated sufficiently hot with an ordinary blow pipe, reducing flux is added and the casting made.

Fourteenth Step: If the case has been carefully waxed and smoothed, the finishing work is materially reduced. All but the final finishing touches can be done before ever trying the case into the mouth. The cervical portions of three-quarter crowns and full crowns are bevelled down and polished so that, where the work has been properly carried through, it is almost impossible to pick up a margin.

* * *

The Dentist's Responsibility

J. LOWE YOUNG, D.D.S., NEW YORK CITY.



HE invitation to be present at this meeting was received with a great deal of pleasure, owing to the very pleasant and profitable time spent with you some ten years ago.

To-day we will discuss the importance of that specialty of dentistry which has occupied my time and efforts for the past twenty years,—namely Orthodontia, and the responsibility of the general practitioner in recognizing its importance and co-operating with the orthodontist regarding the young patient.

To every thoughtful experienced dentist it must be apparent that malocclusion of the teeth is becoming more common in the civilized races, and that this is especially true in our large centres of population. For the moment let us consider why this condition should prevail.

From the beginning of the development of the human embryo until birth, the organism is absolutely dependent upon the contents of the blood of the mother. The contents of the mother's blood depends upon what and how she eats, plus sunshine, fresh air, exercise, proper posture, etc. But, you will say, it is the duty of the physician to see that all this is properly cared for. When you are reminded that for centuries the medical profession has occupied its time and effort in treating disease, you will more readily understand why it is that so very few of them pay serious attention to these things. That some of the leading men in the medical field have had the courage to break away from the old regime is a hopeful sign. When the rank and file of the medical profession

throw away their drugs and seriously try to educate the masses as to what to eat, how to eat it, how much to eat, how to sit, how to stand, how to walk, how to ventilate their homes, how to breathe properly, and the value of sunshine, a new era will have dawned. I have talked with physicians on this subject and have been told by some that the man who tried to practise this method would starve. This is not so if the physician has sufficient intentional stamina to properly impress upon his client the importance of such a procedure. A sick man cannot earn money to pay a physician, while a well man can.

Every disturbance to the organism, both prenatal and antenatal, is liable to interfere with the growth and development of the dental apparatus. That malocclusion of the teeth is far more common than malformation of the individual teeth, is due to the fact that the crowns of the teeth are formed at such an early age. Later interruption to growth and development cannot effect the size and shape of these organs, but does effect the growth of the investing tissues of the teeth, resulting in malocclusion.

At this point we wish to quote from "Preventive Dentistry" by Alfred C. Fones, D.D.S., page 63, first paragraph, as follows:

"The etiology of malocclusion of the teeth is obscure to a certain degree, but it may be stated that the most important known causes of underdevelopment of the jaws and the resulting malocclusion are lack of function and improper diet. It is one of the immutable laws of Nature that proper functioning of any part of the body contributes to the normal development of the part, while in lack of use there results underdevelopment and even atrophy. In infancy normal function and proper diet come through breast feeding. Applied to the teeth, their most important function is the breaking-up of food material in preparation for digestion, and the jaws, being the supporting bony structures of the teeth, develop in response to the normal use of these organs. Not only must the bulk of the food consumed be such as to require the fullest use of the masticatory apparatus, but this apparatus must be able to function normally in response to demand. Previous reference has been made under Dietetics of malocclusion as an almost universal malady present in children of school age. Subsisting, as they do, upon food which is so refined and processed that the natural fibres, or coarseness which calls for the greatest masticatory pressure, are removed, the proper functioning of the jaws and teeth is impossible. It has been shown that, by the same methods of refining, the food is also demineralized, so that the growth elements essential to normal development of the jaws are lacking."

Other causes of malocclusion:

Abnormal frenum labium.

Badly decayed or loose or diseased deciduous teeth.

Biting the tongue, either tip or sides.

Biting the lip or cheek.

Biting the nails or foreign bodies such as lead pencils.

External pressure outside the mouth.

Heredity.

Improper dental restorations.

Loss of permanent tooth or teeth.

Missing permanent tooth or teeth.

Muscle habits.

Premature loss of deciduous molars and canines.

Prolonged retention of deciduous teeth.

Supernumerary teeth.

Underdeveloped facial muscles.

Angle defines Orthodontia as "that science which has for its object the correction of malocclusion of the teeth." Believing that prevention is better than cure, we will define modern Orthodontia as that branch of dental science which has for its object the *prevention* of malocclusion of the teeth.

It must not be inferred from the above that we believe it possible for the dentist and orthodontist jointly to so handle any given number of cases as to insure that all the permanent teeth erupt in their proper positions in the dental arches. But we do believe that by intelligent co-operation of the physician who has the child at birth, the dentist who has the care of the teeth of the mother, and the orthodontist with whom the dentist has conferred, normal occlusion can be established in a very large per cent. of cases when the permanent teeth, except the third molars, are all erupted and developed so that they occlude with their antagonists. The dentist should insist upon seeing the child not later than the end of his third year, and should consult the orthodontist as soon as anything is observed wrong with the shape of the deciduous dental arches and not later than the eruption of the first permanent molars in every case where there is malocclusion.

Time will not permit of even a short discussion of all the various causes of malocclusion enumerated above but we wish to impress upon you that it is your duty to be ever on the alert to try to determine the cause of any abnormal manifestation in the arrangement of the teeth or jaws of the children under your care. You will find parents very appreciative of any assistance you may give them in this regard, and nothing you can do for them will inspire their confidence equal to your detecting and calling their attention to some pernicious habit. A case from practice will serve to illustrate this. A lady brought a ten-year-old girl to the office, and upon entering she said, "I do not know if I can afford to pay the fees I understand you are charging." To this I made no answer, but placed the child in the chair. As soon as I looked at her teeth I remarked, "The child is a thumb-sucker," and the mother replied, "Yes, how did you know that?" This question was also ignored, and I said, "She always sucks her left thumb." With great astonishment the mother replied, "Yes, how did you know that?" I replied that it was

all quite evident from the position of the teeth. By that time I knew that any fee that was within reason would be paid by that mother for the correction of the case, and it was.

The co-operation of an intelligent chair assistant has been found to be very helpful in such cases, as she can watch the child while the operator is talking to the mother, and as all such habits are of a nervous origin, the child being apprehensive at the first visit, is very liable to show just what nervous habit he has.

As most of you are general practitioners, it is deemed advisable to call your attention to a few of these causes of malocclusion and try to point the way for you to overcome them.

The first of these is: Improper dental restorations. All restorations, whether amalgam or gold or inlays, placed in the deciduous molars, permanent molars and premolars, should accurately restore the tooth form.

Second: Premature loss of deciduous molars and canines. The loss of the deciduous incisors is not included, for the following reason. Where normal development and growth occur, spaces appear between the deciduous incisors at an early age and there is no proximal contact of these teeth. Spaces do not occur back of the canines in cases that develop normally, and where a deciduous canine or molar is lost prematurely, or a part of their mesio-distal diameters is lost by decay, the teeth shift forward into such space or spaces. It is a very simple matter to prevent this by placing a band on the deciduous tooth adjoining the space of a lost tooth and soldering a wire to this band to rest against the adjoining tooth. This simple appliance securely cemented on the tooth at the proper time will often obviate a prolonged treatment of malocclusion. If an adjoining deciduous molar requires filling, a gold inlay can be made to carry the wire to maintain the space. If the deciduous teeth are restored as stated above there is no shifting from decay, but these restorations must not be made of cement.

Third: Prolonged retention of deciduous teeth usually results in the permanent successor being either retarded in eruption or deflected either buccally, labially or lingually. But it has not been demonstrated that such retention of the deciduous tooth is responsible for its permanent successor being rotated. It is your duty to be familiar with the normal time for the shedding of all the deciduous teeth, and when retained beyond this time have radiograms made to determine just how the permanent successor is developing, as it has been found that there is a wide variation in the time permanent teeth develop. It has also been found by orthodontists the country over that about ten per cent. of children have one or more permanent teeth congenitally absent.

Fourth: The congenital absence or loss of a permanent tooth always complicates treatment, and in all such cases the orthodontist should be consulted as early as possible. It is the opinion of the writer that it is good practice to close spaces wherever it is practical to do so, rather than subject the child to the annoyance and menace of an artificial tooth.

Fifth: Supernumerary teeth should be removed as early as it can be definitely determined by means of radiograms which is the extra tooth.

Why is it that so many children are brought to the orthodontist for the first time at about the completion of the eruption of the permanent teeth? It is due to the fact that the watchful parent, usually the mother, has observed that the child's teeth and face do not look right. It is the duty of the dentist to so familiarize himself with normal development and growth of the dental apparatus that he can foretell that such a condition is bound to prevail when the permanent teeth have all erupted, and if he has the best interest of his patient in mind he should not wait for the mother to consult an orthodontist, but for his own protection and standing in the profession, as well as for the patient's welfare, he should advise that the child be taken to the orthodontist for consultation at an early age.

How much easier and better it is to guide a malposed tooth into its proper place during the normal eruptive period than to wait until Nature's process is entirely finished and the investing bone completely developed around an abnormally placed tooth. Every orthodontist knows how much easier it is to retain such teeth.

It should be apparent to every intelligent dentist that any mechanical appliance, regardless of how skilfully wrought, renders the teeth and their investing tissues more difficult to keep in a clean and healthy condition. It should also be apparent to every one concerned that young children object far less to appliances that show than do older children. When children reach the age of puberty they are far more liable to be sensitive about their appearance than they are prior to that age, as they naturally have greater interest in the opposite sex. It has also been observed that the investing tissues of the teeth are far more liable to be sensitive during this period of development than either before or after.

It is the firm conviction of the writer that the best service an orthodontist can render is to so treat cases of malocclusion that when the permanent teeth, except the third molars, have all erupted and developed so that they occlude with their antagonists, they are in normal occlusion. It will then be found, as a rule, that the further use of mechanical appliances is unnecessary. This can only be accomplished by the intelligent co-operation of the physician, dentist and orthodontist.

An Address by Dr. J. Lowe Young, Delivered During
the Meeting of the Montreal Dental Club and
Broadcasted by Radio from Montreal



VERY parent should know that a child has two sets of teeth. First the deciduous (baby) teeth that begin to appear about the sixth month after birth and continue until the end of the second or third year, when there should be twenty teeth, ten in the upper jaw and ten in the lower. At this period of the child's development he is able to chew all kinds of food that adults use, if his teeth fit properly, and the more he uses these teeth in masticating his food the greater chance he will have of developing a normal permanent set of teeth.

These deciduous teeth are far more liable to be in proper relation, so that the child can use them for the purpose that Nature intended, than are the permanent teeth, but this is not always so. Wherever a child has difficulty in chewing his food he should at once be taken to a dentist to determine why this is so.

As many of these teeth should remain in the mouth from six to eight years, it is important that they should be looked after by the dentist and when decayed should be filled. When they are decayed and neglected the child usually finds that it hurts him to chew his food, even when the teeth meet properly with the teeth in the opposite jaw, and in such cases the child is liable to form the habit of bolting his food. This usually results in stomach trouble and intestinal disturbance.

The deciduous teeth in the front of the mouth, both upper and lower, are always smaller than their permanent successors, consequently spaces must occur between the deciduous teeth at an early age if there is to be room to accommodate the permanent teeth when they erupt.

About the sixth year the first permanent teeth should appear in the mouth. These should be four in number, two in each jaw, directly back of the deciduous ones. These are known as the first permanent molars, or six-year molars, and are the largest and most important teeth of the permanent set. Unfortunately, these teeth are often neglected by the parent, as she thinks, because the deciduous teeth grew in the front of the mouth first, the permanent ones should also. Millions of these first permanent molars are neglected to such an extent that a very large per cent. of them are lost through decay.

About the seventh year the child starts to lose these deciduous teeth and the ones to first appear are usually the first to be lost. From about the twelfth to the fifteenth year the child should have twenty-eight permanent teeth. The third molars, or wisdom teeth, do not erupt until later.

These permanent teeth, when in proper relation to each other, form a wonderful mechanism for chewing food. In fact, they can co-ordinate as perfectly as do the gears of an automobile. Such a set of teeth properly used on foods requiring thorough mastication are always almost entirely free from decay or disturbance of the investing tissues of the teeth, namely, the gums and underlying bone tissue. This arrangement of the teeth is what is known as normal occlusion.

Unfortunately, malocclusion has been found in the large centres of civilization to be almost as prevalent as dental caries. Ninety-five per cent. of all children of school age are found to have both dental caries and malocclusion. Many of the cases have such a relation that thorough chewing of the food is impossible.

Thirty years ago a prominent author made the statement that the best facial balance was only obtainable when all the permanent teeth were in normal relation. Every parent is desirous that her child should appear to the best advantage—a good face is a great asset in all walks of life. The statement by this author has never been successfully refuted.

How are we to prevent this terrible lack of proper growth and development in the coming generations? This can only be accomplished by the intelligent co-operation of the physician, the dentist, the orthodontist and the parents. The physician has the child at birth, and it is his duty to see that the expectant mother is properly instructed as to her diet prior to the birth of the child and later to supervise the child's diet so that normal development will take place. The dentist who looks after the mother's teeth should insist that the child be brought to him not later than the end of the third year, so that he may see if the child's teeth are in proper relation to enable him to use them to properly chew his food, and as stated before, in case of cavities in the teeth, properly fill them. Where he finds the teeth to be out of harmony, the sooner he refers the child to an orthodontist, the better for the child.

As all children are liable to neglect their mouths and teeth, it is the duty of the parents to be ever watchful to see that the instructions given by the physician, the dentist and the orthodontist, are thoroughly and conscientiously carried out.

One of the greatest causes of the malposition of the teeth, and for which the parent should be ever watchful, is the sucking of the thumb, finger, lips or cheek. These habits, if allowed to continue over a great period of time, are bound to effect the positions of the teeth and the shape of the dental arches. However, these habits if recognized early, are easily overcome. If the parent is in any doubt about any such habit, she should at once consult her dentist.

Pyorrhea Alveolaris—Its Present Status and Treatment Simplified

THOS. B. HARTZELL, M.D., D.D.S., MINNEAPOLIS.

PYORRHEA alveolaris was first described by Fauchard in 1746 as "a purulent inflammation of the dental periosteum, with progressive necrosis of the alveoli and looseness of the teeth." I prefer the name "Pyorrhea Alveolaris" to describe this disease, rather than the newer term "Periodontoclasia," for the reason that the former word implies the breaking down of the tissue about the teeth by bacteria, while the latter word implies any cause whatsoever. To illustrate, the loss of bone in front of a tooth being moved by orthodontic processes, as well as the loss of bone as the result of traumatic occlusion, is, I believe, covered by the general term "Periodontoclasia." On the other hand, the destruction of tissues by suppuration, which process depends upon bacterial action only, is more clearly described by the words or term "Pyorrhea Alveolaris." I cannot attempt to recite the bibliography of this subject. Volumes have been written upon it, and time does not permit.

Pyorrhea can only exist as the result of activity of streptococci and staphylococci, pus-making germs which gain access to the tissues surrounding the teeth by digesting the epithelium lining the gingival crevice; growing as they do in vast numbers on the necks of the teeth, they create ferments which destroy the tissues adjacent to them, thus enabling them to invade the deeper structures, where they set up a series of inflammatory changes through the action of both their toxins and ferments, the ferments alone being responsible for the breaking down and solution of tissue, and the ferments and toxins together act to create inflammation, changing the appearance of the tissue from its pink color and its normal firm condition to the lavender hue of inflammatory disease, causing the tissues to show microscopically the characteristic appearance of a mixed streptococcal-staphylococcal infection, the tissue being granular as to the deeper parts and suppurative as to the surface of the ulcers about the teeth. The further evidence upon which we base the conclusion that pyorrhea is only possible as the result of the activity of these bacteria is because the disease is never found in sterile tissues; and, on the other hand, whenever pyorrhea is known to exist, I can obtain these germs on culture from the deeper structures around the teeth, and also sections of the tissue in which the teeth are located, when properly stained, show these bacteria distributed in them. Again, if the teeth are removed, the evidence of the disease promptly disappears, and the sockets fill and eventually cover with a normal mucous membrane,

further showing that the disease is dependent upon something associated with the tooth itself, that something being, as I said before, the powerfully invasive bacteria growing on the sides of the tooth, from which they enter the tissues. Further proof that the disease depends upon bacteria for its origin and course is afforded by the prevention of the growth of bacteria on the tooth sides by a daily system of cleansing, which reduces their number to such a degree that they do not make sufficient ferment to continue to enter and destroy the tissue. And the supply of invaders once stopped, the blood cells overcome those that are at work in the tissues so that they rapidly return to normal. Both streptococci and staphylococci are more easily destroyed by the blood cells than the tubercle bacillus, which is more resistant to the attack of the tissue cell because of the larger fat content of its protecting surface; so that if the supply of streptococci and staphylococci is shut off, either by extracting the tooth upon whose surfaces they grow and enter the surrounding structure, or if the tooth's surfaces are as free of bacteria as they should be, healing will take place with the same certainty as if the tooth were removed. Streptococci, staphylococci, tubercle bacilli and the treponema pallidum, may live in the tissues for long periods of time. Goadby found pus-forming bacteria in the scars of wounds months after wounds were healed. Unlike tubercular and syphilitic lesions, streptococcal lesions of gums can be reached and helped by local treatment.

Any form of physical disability or ill-health which reduces the energy of the patient permits bacterial activity of all types to be more damaging, because of loss of power to resist bacterial invasion. The bruising of the peridental membrane by traumatic occlusion has given rise to the popular fallacy that traumatic occlusion is the cause of pyorrhea; however, this can be readily disproven by the fact that malocclusion without bacteria does not cause the disease, as the following cases show:

CASE NUMBER 1.—Patient age 58. History shows that because of the absence of lower centrals and laterals and upper laterals, the teeth have been driven steadily forward for years, until the spaces existing on account of the lack of six teeth have been practically filled, and the molars and bicuspid are leaning forward (having been driven under traumatic occlusion until the central and lateral spaces are filled); the bicuspid and cuspid are leaning at an angle of 45° forward and toward the medium line. Yet we find, on close examination of this case, no suggestion of inflammation about the teeth—the tissues are firmly attached, pink, firm and resistant.

CASE NUMBER 2.—Male, 38 years old. The whole occlusion up until some eight years ago was between the third molars. Second

molars have been brought into partial occlusion by grinding the molars. This case has been in traumatic occlusion at least fifteen years. Gums are pink and hard; tissues well attached at the gingival margins; not the slightest evidence of inflammation is to be found in the tissues contiguous to the teeth.

CASE NUMBER 3.—Male, 33 years old. Right upper third and lower first molar extracted three years ago. One of the most profound malocclusions that I have ever studied. The casts shown indicate that the molars on the left side are out of balance fully one-eighth of an inch, the right lower molars lean forward and in, and have moved bodily forward. The left lower second and third molars are in position and are being traumatized daily. Gums about these teeth are pink, firm, well attached, and do not betray the slightest suggestion of inflammation.

CASE NUMBER 4.—Female, 70 years old. Cast shows the teeth to be in powerful malocclusion which commenced forty years ago, following the extraction of teeth missing in the cast; is without pus, and exhibits no change in bone except those due to pressure.

CASE NUMBER 5.—Female, 77 years old. Many teeth absent through extraction, and all remaining in irregular position, traumatic occlusion having existed in this mouth from early childhood. The gums are pink, firm and well attached; no bleeding at any point.

CASE NUMBER 6.—The casts exhibited were given me by Dr. L. L. Barber, of Toledo. The patient was about thirty years old when she came to Dr. Barber. He could squeeze pus from the margin of the gums any place in the mouth. She had nothing done but the removal of deposits, and was taught how to use the brush. This patient returned to Dr. Barber for treatment recently, and he states the soft tissues in this case made recovery without medication, by the faithful use of the brush. Here is a vigorous pyorrhea with traumatic occlusion cured by the removal of deposits, and continuing a daily efficient use of the toothbrush, scouring each tooth until clean. If traumatic occlusion were the actual cause of this pus formation, we certainly could not expect to gain cessation of infection without correcting the malocclusion. Notwithstanding the fact, however, that this has not been done, the case shows hard, pink gums with no inflammatory exudate, as the result of an excellent, daily, self-administered prophylactic treatment with the tooth brush.

CASE NUMBER 7 is well illustrative of a common type, and we have a great many cases like it. All the teeth are in normal occlusion. Patient never has complained of any discomfort until lately. Examination reveals the fact that the tissues are swollen, thickened, and pyorrheal ulcers exist around most of the teeth from one-eighth to two-eighths

of an inch deep. In spite of the fact that normal occlusion has always obtained, bacteria have invaded the tissues and pyorrhea has existed for several years about the whole denture.

The first six cases were traumatic occlusions of various types, and without the slightest evidence of bacterial infection in the gum margins or deep structures about any of the teeth, and the use of revealing stain shows further that the necks of the teeth are comparatively free from bacterial masses. This is due to the fact that these patients have habitually scoured the necks of these teeth so that there is a very meagre amount of bacterial growth upon them at the gingival margin. In view of the fact that cases of type No. 7 are numerous and easily demonstrated, it further points to the fact that it is not normal occlusion or malocclusion that governs the occurrence of pyorrhea. Rather, it is the heavy growth of bacteria on them which are protected from the scouring action of foods by the broad overhanging crowns and contact points, thus enabling them to accumulate and invade the gums unopposed.

It is a fundamental truth that good food increases vitality, strength and our ability to resist disease. But we cannot depend upon it alone, because we are constantly meeting people, whose diets are apparently perfect, who have pronounced pyorrhea. In fact, I note some of the most vigorous advocates of diet to control mouth disease have not prevented the loss of their teeth, and I give a case history to show that we cannot depend on diet alone to prevent pyorrhea, and I can duplicate this case history at least once a day of active practice. I find patients whose food and water intake conforms to the laws of health, presenting vigorous pyorrhea, as the following case illustrates: A young girl about sixteen, above the average height, splendidly developed, excellent health, good teeth and in normal occlusion. Patient in good circumstances. The diet of this patient contains a larger bulk of leafy-top vegetables and citrous fruits than usual; she is fond of salads made of cabbage, sliced raw carrots, lettuce, and is so fond of raw carrots that she often eats them as one does apples. Notwithstanding this good dietetic regimen there are deep ulcerating pockets between the first and second molars whose surfaces show a heavy bulk of bacteria when stained. A daily scouring of the tooth surfaces, together with the application of alternating light and heavy pressure on the swollen gums, thereby removing the bacterial masses and inflammatory exudate, and improving the blood circulation to the gum margins, resulted in rapid healing of the ulcers and disappearance of the œdema. Deposits on the sides of the roots must be removed without injury to the cementum. It is a great mistake to expose cementoblasts to infection by over-scraping root surfaces.

HEALING OF GINGIVAL CREVICE.

The gingival crevice, when denuded of its epithelial covering, is recovered with new epithelium in about seven days after the continuous active ingress of bacteria is stopped. New epithelium will not extend itself deeper into a pyorrhea pocket than the normal depth of its original gingival crevice. Therefore, when destruction of bone and periodontal membrane has occurred, thus creating lesions deeper than the ordinary depth of the gingival crevice, keep the tooth surfaces scoured clean, and in so doing make as heavy pressure on the edge of the loosened tissues with the sides of the tooth brush bristles as possible. This will cause rapid shrinkage of this loosened tissue, oftentimes lessening the depth of the lesion to a point where the gingival epithelium will extend to the bottom and completely cover it, thus making it unnecessary to cut away any of the gum to gain healing, with the great advantage that the tooth root has retained the greatest possible amount of its covering. If, however, the squeezing and scouring process does not shrink the cedematous loosened tissue to a degree that will enable the epithelium to completely cover again the gingival crevice, *then* cut away such an amount of it as will reduce the pocket to a point that will enable the gingival epithelium to reach the bottom of the crevice, thus inducing perfect healing. If this routine is followed, it will be found that comparatively small amount of tissue need be sacrificed, thus securing complete healing with smallest possible loss of tissue.

DRUGS have small place in pyorrhea treatment. Vaccines and sera have been proven almost useless because they do not produce immunity to, nor prevent, bacterial growth. Our best weapons to fight it are cleanliness and proper food. Of late, however, I have hastened healing to some degree by introducing into deeper pockets an oxidizing agent (derived from sulphuric acid and cresol and united by means of a suitable catalyst). This causes the oxidation and dissolution of granulosomatous tissue without injury to normal tissue cells, and is a distinct advantage. When this technique is utilized, the oxidizing agent should be carefully placed in the pocket and allowed to act for a moment, and then neutralized with saturated solution of bicarbonate of soda. This painless, quick method of destroying bacteria and granulosomatous tissue was first suggested by Dr. F. B. Lawrence.

Disclosing stains that show to the patient the bacterial masses on the teeth are a necessity. Those composed largely of iodine are best, because they not only reveal the bacterial masses, but also help to destroy them. One of the most useful is a composition of:

Iodine—fifty grains.

Zinc Iodide—fifteen grains.

Potassium Iodide—fifteen grains.

These solids should be pulverized in a mortar with a half-ounce of glycerine, then poured into a bottle, after which a half-ounce of water should be used to wash the mortar, and the water added to the first solution and well shaken. It is then ready for application to teeth and gums. It is not only a revealing stain, but it is also a healing astringent to inflamed soft tissues, and may be supplied to the patient to be used on teeth and gums twice a week after cleaning, for two purposes: first, to show the patient when he has failed to thoroughly cleanse his teeth so that he may try again, and thus complete a perfect cleansing, and also to gain the healing astringent action of the solution on the soft tissues.

No one can be cured of pyorrhea who permits great masses of pyogenic bacteria to accumulate and remain undisturbed for hours or days on his tooth surfaces adjacent to the gums. Pyorrhea treatment by the dentist who skilfully removes all deposits on his patient's teeth, and who corrects all malocclusion, and stops there, fails to permanently benefit his patient. These things are but preparatory to the cure which is wrought by the patient in daily cleansing off the continuously growing bacterial mass, together with the emptying of the gingival crevices of pus by squeezing them repeatedly during the scouring process. The dentist who first trains his patients to do this effectively will cure most of his cases, whether he does the other things or not, providing he can actually train the patient to spend 15 minutes' time morning and evening at this work. Is fifteen minutes night and morning too much to pay to save our teeth, when it may also mean the saving of our lives?

Sodium ricinoleate is an exceedingly valuable drug. It is prepared by boiling castor oil and sodium hydrate together over a water bath. When it is incorporated in scouring preparations it detoxifies the bacterial poisons formed by the streptococcus group as well as many other bacteria.*

Sodium ricinoleate to the amount of 2 per cent. of the total bulk of any scouring preparation that is so compounded that the sodium ricinoleate will not be precipitated out of solution, is a very material help in the maintenance of germ-free tooth surfaces. Where rapid shrinkage of tissues is indicated, and the epithelium is soft and tender, one ounce of zinc sulpho carbolate dissolved in eight ounces of distilled water to which has been added a few drops of alcoholic solution of oil of cinnamon may be used. This should be patted into tissues with

*(See article on Detoxification of Tetanus, American Dental Journal, March 25, 1925). (See also page 552, Proceedings of the Society of Experimental Biology and Medicine, Vol. 22, May, 1925. Antidiphtheric immunization using sodium ricinoleate as a detoxifying agent.) (See also Preparation of Pure Sodium Ricinoleate, page 553, May Proceedings of the Society of Experimental Biology. Publication office of this journal, Griffith's Press, 100 Liberty St., Utica, N.Y.)

cotton several times daily. It lessens the congestion and causes a rapid shrinkage and hardening of the gums.

SCOURING.

Scouring of tooth surfaces is a fine art, and can best be taught to the average individual by demonstrating on the patient's own teeth. The first essential is a set of tooth brushes so constructed that all surfaces of all the teeth may be reached. This, of necessity, means that one must possess brushes capable of reaching the lingual and distal and interproximate as well as the buccal surfaces. Most all tooth brushes seem to have been planned for scouring only the convex surfaces of the teeth, and these surfaces need scouring least of all, because they are reached by foods in the act of mastication and are kept moderately free from bacteria by use. Destruction of the teeth in pyorrhea begins in the gingival crevice by the solution of the protecting epithelium lining it, by the ferments created by pyogenic bacteria. The heavier masses collect in between the teeth and on the necks of the teeth which are protected from friction of food during mastication by bulbous crowns, allowing the bacterial mass accumulating on the necks of the teeth to remain undisturbed. This bacterial mass first attacks the epithelium in the gingival crevice; digesting this, they gain access to the tissues. This invasion usually takes place over many months, maintaining a chronic inflammation. The gums become swollen and œdematous and the circulation is impaired, allowing the invading bacteria to colonize in these tissues.

The end to be attained demands brushes with very stiff bristles which can be pushed in between the teeth tightly enough to wedge, so that the scouring motion of the handle of the brush, pulling out a little way and thrusting in a little way, is done without pricking the soft tissues. Experience has shown that these bristle tufts should be at least one-eighth inch apart, and should vary in length according to the width of the different teeth from buccal to lingual. Bristles long enough to reach through the embrasures between the molar teeth necessitate greater length than is required to reach through and scour the proximate surfaces of incisors. Therefore I have devised, for my own use, a small series of brushes, from which I select for each patient those best suited to his needs, always supplying enough of them so that he never needs to use a brush after the saliva shall have softened it. This is important, as bristles that have been wet for some time in water or saliva are almost useless, because they are too soft to scour. I direct all patients to cease the use of a tooth brush when the bristles become soft, to wash out the brush thoroughly with soap and water, and then dip the brush in common salt water brine, not to be used again until dry.

For buccal surfaces use a small brush with the knots of bristles so placed and trimmed as to admit of easy insertion between the teeth. Lean the bristles against the cutting edges of the teeth and curve them slightly, slowly pressing the bristles down in this curved position until they rest upon the gum edge, but curved away from the gum edge, so they will not prick it. Then thrust the bristles in between the teeth as tightly as the strength of the hand will permit, and move the handle back and forth about a quarter of an inch, thus permitting the wedged bristles to rub back and forth against the proximate surfaces of the teeth, and at the same time squeezing the gum edge with every movement. By the pressure of the sides of the stiff tooth brush bristles against the gums the gingival crevice is for the moment lessened in depth, and at the same time the to-and-fro movement of the bristles scours the previously unexposed tooth surface. No harm is ever done to the gingival edge by this pressure. On the contrary, the tissues of the gingival edge are hardened and the circulation improved by this manipulation. The same thing should be done for the lingual tooth surfaces. Because of the difficulty of attaining this technique with a straight brush on the lingual surfaces, I have devised two or three simple forms adapted for scouring the inside of the dental arch, and compressing the gums between the teeth with the same degree of efficiency that can be attained with the ordinary straight brush on the buccal and labial surfaces.

The use of these odd tooth brush forms must be taught to each individual. Take, for instance, the case of a patient who has lost a first molar—the mesial surface of such an isolated tooth by all the ordinary means of scouring will not be swept free of its accumulated bacterial mass, and for that reason deep pyorrhea pockets form under the overhanging broad mesial surface of the molar, slowly extending themselves towards the root end. The patient should be taught to remove this mass daily by taking a small brush with the bristles so placed that they fit around the bulge of the crown, and make firm pressure against the mesial surface and gum of the second molar when pushed against it. By a pulling movement the same brush may be used to scour the distal surface of the second bicuspid. There is no reason in the world why the possessor of teeth should not look after each one of them with as much care, himself, as he expects of his dentist. Good dentistry presupposes that the dentist will give attention to every tooth in the denture, and he may be called upon to spend hours in the treatment or repair of a single tooth. Is it not just as important that the individual owning the teeth should take special care to keep each individual tooth in such condition that disease of the gum margin or the enamel surface is made impossible? I believe that it is. I observe, too, that when our patients learn that they can prevent not only pyorrhea,

but caries as well, by spending ten to twenty minutes a day in the care of their teeth, they are ready and willing to follow this method. Thereby they preserve not only the health of the teeth themselves, but the tissues investing the teeth, and by so doing prevent the occurrence of many death-dealing lesions of the heart, joints and kidney.

Pressure and friction on the gum about the teeth increase the density of the sub-epithelial tissues and the depth of the external epithelium, in the same fashion that friction and pressure increase the depth and density of the corresponding tissues of the palm of the hand or the sole of the foot; and while applying pressure and friction to gums surrounding the teeth, the individual can also make friction on teeth, too, thus scouring away the bacterial accumulation, thereby stopping the disease and rebuilding by the same act. Is fifteen minutes night and morning too much to pay to save our teeth, when it also may mean the saving of one's life?

Success

“HAT makes a man successful?” asks Dr. W. V. Bingham of the Carnegie Institute of Technology, Pittsburgh. “Is it hard work? Every one knows some very industrious workers who have not advanced. Is it luck? There seem to be more opportunities than there are men to take them. Is it the good mixer that forges ahead? Not always. Is it the ambitious student who spends his nights and Sundays poring over correspondence courses? Or the man who has the most schooling, or the best experience, or the soundest health, or the deepest reserves of energy?”

“It evidently takes more than ambition and grit, more than experience and education, to succeed. The purpose to succeed is not enough. There must be something behind it—something native. To become a successful man one must start out with an inherited equipment—not of lands and dollars—but of brains.

“The demands of business to-day are for the elimination of waste, not only of materials, but of men. To this end, business requires that science shall develop adequate means for measuring differences in brains—as well as in height and weight, so that personnel specifications for different jobs can be written with as much definiteness as we now write specifications for particular grades of steel.

“Eventually, with closer co-operation between business executives and the research workers in the universities, adequate means will be developed for measuring not only the intellectual side of a man's equipment, but also his social and moral aptitudes. For, to predict a man's success it is necessary to have a measure not only of his native intelligence and of his learning, but also of his entire personality.”

The Importance of Dental Radiographic Examination*

BY ALONZO MILTON NODINE, L.D.S., R.C.S., LONDON.



OUR courtesy in inviting me to read a paper before your society to-night is much appreciated. I trust, by the interchange of our experiences, we may gain something from each other that may assist us in our work.

My experience in making dental radiograms is limited to about twelve years. In that time I have used five x-ray machines—two induction coil machines, two interrupterless transformers—one in the New York Nose, Throat and Lung Hospitals, and one in my own place—with seven-inch gas tubes. Now I am using the Coolidge Dental Unit. From my experience, as a general dental practitioner and a specialist in the field of eradicating dental foci of infection and minor surgery of the jaws, pyorrhea and radiography, I consider the Coolidge Dental Unit more reliable, uniform and less trouble than the previous types of machine I have used. It consists primarily of a step-up transformer, with a switch and current regulating device and a self-rectifying x-ray tube. The capacity of the dental unit I am now using is about 45,000 volts, 10 milliamperes delivered through the tube, equivalent to a 3-inch back-up. It has a radiator tube, with a fine focus of about 3 millimetres. With such a machine and tube, good extra-oral exposures may be made, using super-speed Eastman's duplicized films, with two intensifying screens, in from 2 to 3 seconds; intra-oral exposures, using the small size extra-fast films, may be made in $\frac{3}{4}$ to 2 seconds.

I do not harbor the idea that good exposures for dental work are not made with other machines and other tubes. But for purely dental work more good negatives will be secured by the average man, with less trouble, with greater uniformity of results, than with any other type of machine. But whatever machine we have, and having the films and the patient, what is the dental radiogram liable to reveal? Before we answer that, or make our exposure, it is better for us to consider the anatomy of the parts which may be included in the range of our exposure; and, further, to consider some of the pathological processes that take place in these structures.

ANATOMY OF THE JAWS.

We will first consider the lower jaw, for that is simple in structure and shape. The lower jaw is a horse-shoe shaped bone with two large

* Paper read before the Society of Radiographers, March 10, 1925, and published by courtesy of The Medical Press.

heels or rami. If we took the bend out of the lower jaw and straightened it out, we would have a rough heavy U-shaped bone, with large curved notches at the upper extremities. On the outer surface we have the external oblique line, which is a continuation of the inner border of the upright, and sweeps forwards toward the median line in a curve and ends just about the mental foramen below the premolar teeth. On the inner surface we have the internal oblique line, which sweeps backward from the middle of the median line in a curve and ends upon the extreme inner surface of the inner border of the upright of the U. Then we have the inferior dental canal which begins on the inner flat surface of the upright or ramus, about in the middle of this surface, at the inferior dental foramen it sweeps downward in a curve, below the roots of the molar teeth, crosses the jaw in the centre of its substance, in a diagonal direction, makes an almost right-angle bend, before it comes out on the external surface of the jaw, as the mental foramen, about half an inch above the lower border of the jaw and below the premolar teeth. In the lower jaw we have very little to confuse us in the way of natural cavities, except the inferior dental canal, and the mental foramen. And very little super-imposition of bone except the external oblique line which is quite regular and easily accounted for.

But when we come to the upper jaw we have a very complicated structure. We have the same horse-shoe shaped arch, but the arch has a dome or roof, and above the roof are two pairs of irregular-shaped cavities—the maxillary sinuses and the nasal cavities. In addition, we have the two flying buttresses of the malar processes, and the naso-palatine foramen back of the incisor teeth.

The maxillary sinus is shaped like a hollow wedge, with the base upwards and extending antero-posteriorly, from about the canine tooth to the third molar tooth; and, in addition, there is a triangular extension into the malar process. The roots of the molar teeth may straddle, penetrate, or lie below the floor of this cavity; the roots of the premolar teeth may penetrate the anterior wall or lie in close apposition to it, and sometimes the canine and even the lateral may penetrate the anterior wall.

DIFFICULTY OF INTERPRETATION.

We are confronted with a difficulty of interpretation, when the shadows of this complicated cavity, with its bony borders, malar process and the roots of the molar and premolar teeth are cast upon a film, which may also lie in two planes, one of which may be upright and parallel to the crowns of the teeth, and the other curved to conform to the hard palate. The great uncertainty, in my experience, is in telling whether or not the roots extend into or penetrate the floor of the maxillary sinus. And this difficulty would not be greatly reduced even

were good stereoscopic exposures made. In a considerable number of cases the shadow of this cavity has been diagnosed as a cyst or an abscess. The cavities of the nose may also mislead the beginner and suggest cysts or abscesses over the incisor teeth. The naso-palatine foramen is the shadow that often leads many astray. It is just back of the incisor teeth in the mid-line between them. It is sometimes round, oval or diamond-shaped.

The best guide for the beginner, in taking dental radiograms to overcome the difficulties I have pointed out, is Raper's latest book, in which he gives the angles and technique for making exposures for the different regions of the jaws.

RADIOGRAM'S EXPOSE OF DENTAL CONDITIONS.

In regard to the conditions that the dental radiogram may be expected to reveal, without going into the matter deeper than one evening permits, we may suggest the following: An examination of 1,500 patients at the Mayo clinic in America (and I may state in parentheses, so that you will not have a wrong idea of what the word clinic stands for, that this clinic is a hospital or hospitals in which patients pay from nothing to \$10,000 or more for their treatment, depending upon their ability to pay). Eighty-seven per cent. of these patients—the radiographic examination showed—had infected teeth. Eighty per cent. of the patients had pyorrhea.

I will go into the pathological significance of the above examinations and those that follow later. Dr. Black, dean of the Dental School of the North Western University, tells us that in an examination of 800 patients of the average age of 26, 78 per cent. had lost a part of their jaw bone as the result of alveolar abscess. Hughes, of California, in an examination of 2,000 radiograms, found 950 apical abscesses upon the roots of teeth having porcelain crowns in place. Sniffen, in an examination of 50 sets of full mouth radiograms, found 84 roots left in, and 84 of them were infected. Gardner, of the Mayo Clinic, states that Eusterman, in an examination of 283 patients, from whom teeth had been extracted by the ordinary methods of pulling, that roots remained in 30 per cent. of the patients. Eusterman found in another examination of 290 patients, with partial or edentulous jaws, that 129 patients (45 per cent.) had remaining roots; 13 patients had impacted teeth, 9 patients had residual areas of infection.

Eusterman in still another examination of 900 patients found 2,099 pulpless teeth—7 per cent. of the teeth were pulpless, 2 pulpless teeth to each patient; only 20 per cent. of the pulpless teeth were negative to the x-ray; 80 per cent. revealed evidence of some lesion, including minute rarefaction, granulomas, cysts, etc.; 13 per cent. of the patients

had impacted teeth; and there were 45 residual areas of infection following the extraction of teeth.

Darling found in an x-ray examination of 765 hospital patients that only 64 (8 per cent.) were free from oral infection; 592 patients had direct evidence of some local pathology, which indicated removal of the teeth; 1,568 areas of infection in 529 cases, or about 3 to each case; 109 patients (14 per cent.) had impacted teeth; 159 patients (20 per cent.) showed the presence of roots left in following incomplete extraction.

Gardner discovered, in an examination of 28,000 patients in the Mayo Clinic, in one year, ample evidence that the ordinary method of extracting teeth is far from complete; 30 per cent. of the patients had roots left in, 4 per cent. had impacted or unerrupted teeth, 3.5 per cent. had residual granulomas.

Willems and King, in London, in an x-ray examination of 50 mouths, of which they had taken 9.3 films per patient—these patients had either completely edentulous or partially edentulous jaws—15 patients (33 per cent.) had broken roots left in; 3 patients (6 per cent.) had residual areas of infection; 11 patients (22 per cent.) had impacted or unerrupted teeth.

In my own examination of 50 patients referred to me for diagnosis or operation, in partial or completely edentulous cases, I found 61 roots left in; 12 residual areas of infection, including two large cysts in nine patients and eight impacted teeth in seven patients. And Stiven's examinations approximate the above.

DENTAL RADIOGRAM'S AID IN DIAGNOSIS.

There is hardly any other region of the body, or any other structure, upon which an x-ray examination may be used so successfully on so many patients, and, comparatively speaking, if the pathological conditions were corrected, with such beneficial results—provided full mouth examination is made. In the Life Extension Institute in New York, established by the life insurance companies for the periodic examination of patients, a full mouth dental radiographic examination is included in their routine examination. In the Mayo Clinic, and in many hospitals, and in group practice, full mouth dental radiographic examination is part of the diagnosis. The time is not far distant when every diagnostician will require x-ray examination of all patients. "From the point of view of ætiologic value, of the results of treatment, of the pathology, and, in fact, from any standpoint, any report that does not declare the absence or the presence of mouth infection is incomplete and has its value greatly diminished. The neglect of practising physicians and surgeons in omitting a study of the mouths of their patients is inexcusable. Moreover, the neglect of laboratory experts in not insisting on knowing

the condition of patients' mouths when they are presenting reports on a series of cases is regrettable. The profession as a whole should recognize that a clinical examination is incomplete without data that will either exclude or include focal infection."¹

GROSS FINDINGS OF THE X-RAY.

We will recapitulate the gross findings of the x-ray and other examinations. It has been estimated that at the age of twenty-five, 25 per cent. of the human race have septic mouths; at the age of forty-five, 90 per cent. have septic mouths; and at the age of fifty, 100 per cent. have septic mouths!² It has also been determined by examination that from 85 per cent. to 95 per cent. of the population of the United States, Canada and Great Britain have cavities in their teeth produced by caries. At the Mayo Clinic examinations of the patients disclose that 87 per cent. have infected teeth, and 80 per cent. have pyorrhea! About 78 per cent. of the patients at the age of twenty-six have lost a part of the jaw bone as the result of alveolar abscess. About 33 1-3 per cent. have roots left in after the ordinary method of extraction. About 10 to 15 per cent. have impacted or unerrupted teeth. About 5 to 10 per cent. have residual areas of infection. Without fear of successful contradiction, it may be said there is not more than one patient in 200 in adult life for whom the x-ray would not reveal some pathological condition which, if corrected, would not result in benefit to the patient.

DENTAL CARIES.

Ninety-five per cent. of the population have decayed teeth! In most of these patients the great majority of the cavities of decay are on exposed surfaces of the teeth where they may be seen with the unaided eye or found with a fine exploring instrument. But even the casual inspection of a number of dental radiograms will disclose the beginnings of decay unsuspected by either the patient or the dentist. In all essential particulars, dental caries is an infection produced by micro-organisms upon a structure of lowered resistance. The causes of this lowered resistance are unnecessary to go into here. But we are interested in the radiographic appearance of this decay. The appearance of decay varies from the slightest shadow to that of a shadow which indicates the entire lack of substance—a space. Initial decay usually radiates in a symmetrical fashion, from the surface toward the pulp. Recurrent decay may be radiating or a distinct space about or under a filling. The less amount of tooth material that has been affected, removed, or changed, the fainter will be the shadow and the greater amount of tooth material that has been affected, changed, or removed, the deeper will be the shadow.

The importance of this radiographic inspection is due to the fact that many cavities of decay are found under the gum margin, between teeth, and under fillings, crowns, clasps, etc., inaccessible to the eye or instrument of the dentist. Infection of the dentinal tubules is in considerable advance of the molecular disintegration of the teeth substance, so that the pulp of the teeth may be, and probably is, in most instances, infected before any considerable amount of tooth substance is removed or destroyed. Therefore the employment of the x-ray is important to discover decay before the pulp is infected and inevitably lost, so that the attempt to arrest the infection by filling may be successful before the process has gone too far.

STRUCTURE OF THE TOOTH.

When a section of a tooth is seen under the microscope, it will be found to consist of four distinct structures, and it is held in place in its socket by a fifth structure, the peridental membrane, that surrounds the root of the tooth. This membrane acts as a shock absorber and ligament binding the tooth to the bone and suspending it in its socket.

Covering the visible part of the tooth is the enamel or armour of the tooth. A dead lifeless structure, built up in prisms, which radiate in almost parallel columns from the inner surface toward the outer surface. Between the prisms is another substance, an inter-prismatic material containing a very small percentage of animal matter.

Under the enamel, forming the greater part of the substance of the tooth, is the dentine. This is a structure tubular in construction, made up largely of calcium salts. Through this deposition of calcium salts run a great many tubes. These tubes contain a protoplasmic material which communicates with the central pulp, with each other, and with the peridental membrane in the region about the apex of the tooth, and in about 75 per cent. of the teeth, with lateral or accessory canals containing pulp tissue, which also communicates with the peridental membrane.

Covering the root of the tooth is a thin porous structureless material, called cementum. It has been described as bone-like. But it differs from bone in that it contains no circulation, no cells, no canaliculi, no Haversian system. Its function is, as its name suggests, a cement that holds the fibres of the peridental membrane to the tooth. And it has been claimed that it is not deposited upon the tooth until the tooth comes into occlusion.

The peridental membrane is a connective tissue surrounding the root of the tooth, performing the two functions previously suggested, and it contains blood-vessels, lymphatics and nerves running in a line parallel with the long axis of the tooth, and the connective tissue fibres

run at right angles to the long axis of the tooth and attached on one side to the bone, and on the other are imbedded in the cementum. On the side nearer the cementum there are to be found cementum-forming cells, and on the other side, nearer the bone, bone-forming cells. The pulp and the peridental membrane spring from the same source, and were once continuous over the whole base of the pulp.³

In the centre of the tooth is the pulp, a soft tissue containing blood-vessels, lymphatics, and nerves, and, on the surfaces next to the dentine, there are dentine-forming cells. The pulp is the remains of the dentine-forming organ. The pulp communicates with the dentine, by the extension of protoplasmic fibrils—these make up the protoplasmic material in the dentinal tubules—and with the peridental membrane, by means of the main canal of the tooth and by means of accessory canals that pass out laterally or through the apical area.

This briefly is the structure of the tooth. When the enamel or the cementum is destroyed, and micro-organisms have gained entrance to the dentinal tubules, they travel inwards toward the pulp in advance of the molecular disintegration of the tooth substance. The pulp becomes infected in advance of the process of decay. Understanding the tubular structure of the tooth, with its communicating branches, it is quite apparent that once the tooth has any considerable area of tubes infected, it is only a question of time before the pulp and the whole dentinal structure is infected, and the infection carried outside of the tooth to the peridental membrane and then into the circulation.

As it has been satisfactorily demonstrated, that it is impossible to sterilize infected bone in the body by any of the known methods without destroying its integrity, except upon its surface, we are able to appreciate the fact, that it is impossible to sterilize infected dentine, a structure denser than bone, without destroying its integrity, and affecting the peridental membrane that surrounds the tooth. It, therefore, appears logical to claim that once the dentine is infected, and the pulp removed, that the tooth remains infected until removed. Because it is a porous tubular structure, containing about 25% decomposable animal matter exposed to the infection of the mouth at one end and communicating with the peridental membrane at the other, and contains nothing within itself able to overcome the infection, it is absolutely dead—lifeless, in every sense of the word.

PERIAPICAL INFECTION

When the infection reaches the peridental membrane at the apex, several effects may be produced, depending upon the kind and virulence of the micro-organisms and the local tissue and systemic assistance of the patient. The most frequent effect produced by micro-organisms, that effect little local tissue reaction, is a slight thickening of the membrane,

coincident with a slow absorption of the bone to accommodate it. This may be followed by a destruction of the membrane and the filling in of the space by a condensing osteitis. A radiogram of this may show a pulpless, well-filled tooth, with no radiolucent area about the apex. This is a slow, chronic process, but this appearance is no indication that either the tooth or the apical bone is not infected. If this destruction of the peridental membrane does not take place—after a slight thickening—and the space is not filled in, the infection may take a step further: this consists in a progressive increase in the thickening of the peridental membrane, until a granuloma is formed, and the granuloma may increase and change into a cyst, which may increase in size until the half of either jaw is destroyed. The membrane may be destroyed and the infection may be diffused through the bone, with a gradual degeneration and softening, or the reverse may take place, a gradual increase in density, known as a condensing osteitis, and the first, as a rarefying osteitis.

The infection may take another form, and may cause a stimulation of the peridental membrane, producing a re-deposit on the cementum (excementosis) and a condensing osteitis of the alveolar bone. Or the infecting organisms may cause a destruction and absorption of the root, which may be symmetrical and complete, or it may be irregular and incomplete. Again, absorption of the root and deposition may take place on one root and a re-deposit of cementum on the other, or alternate absorption and deposition may take place on the same root.

PERIDENTAL INFECTION—PYORRHEA.

The next class of destruction that will be considered is that originating not in the tooth itself, but that originating outside and round the tooth, in the sulcus around the tooth, between the tooth and the supporting bone. And this will be given the name of peridental infection or peridental destruction. This infection and destruction may be produced by trauma of many kinds, lack of use, micro-organisms, or systemic disease, etc.

This type of infection is, in a general sense, a destruction, not of the tooth, but of the supporting structures of the tooth. The ultimate effects, however, may be similar to those produced by the infection taking place through the pulp and the infected dentine. This type of infection may be divided into two general classes. First, one in which it is local and tends to produce its effects upon one side of the tooth. It travels between the tooth and the bone, infecting both the peridental membrane and the bone. It severs the fibres attaching the peridental membrane to the cementum, and destroys the bone in the line of the infection. This infection infiltrates the bone to some variable depth and usually produces a condensing osteitis of the bone in the neighborhood. It travels toward the apex of the tooth, because the blood-vessels and lymphatics run parallel to the long axis of the tooth, and the infection

drains, or is conveyed, to the apical region and the pulp, where it may produce conditions previously described.

The second type of infection is a general infection of the supporting tissues of all the teeth, in which there is a gradual infection of the whole tissue surrounding the teeth, and, instead of having the marked tendency to travel down one side of the tooth, the bone and peridental membrane is infected and destroyed around the circumference of the tooth. In both types of peridental infection, absorption takes place in the infected tissue, and is carried toward the apex of the tooth, absorption taking place at this point, accelerated by the mechanical force of mastication, which simulates a pump, forcing the micro-organisms into the circulation, and third, the micro-organisms are discharged into the mouth and may infect the tonsils, throat and digestive tract.

In many instances these peridental infections are overlooked, undiscovered or disregarded by the dentist until the radiogram discloses the extent and the position of the destruction. Radiograms will assist the dentist in determining the method that may be employed to save savable teeth, and to indicate the hopelessness of attempting to save unsavable teeth.

FAILURE OF THE ORDINARY METHOD OF EXTRACTION.

It has already been suggested that the ordinary method of pulling teeth in a large percentage of patients has resulted in roots left in, the infection perpetuated, the destruction of sound tissue, and the inability to remove impacted or difficult teeth.

A method of overcoming these failures and difficulties was introduced by Novitsky of San Francisco and employed in the Mayo Clinic that simplifies the whole procedure and makes possible the complete removal of the tooth and the infection without the unnecessary destructive removal of sound tissue. This method briefly consists in making an incision through the gum, elevating the gum and periosteum off the bone about the tooth, removing the outer plate of bone covering the root, removing the tooth exposing the cavity, then with curettes, removing the diseased tissue, cleaning up the wound, smoothing the bone and replacing the flap with sutures and providing for drainage. In the case of pyorrhea teeth, the infected peridental membrane is dissected out, and any degenerated sclerotic bone is trimmed away, and smoothed off, so that an artificial substitute may be made to rest properly and comfortably on the tissues.

It is obvious that the mere removal of the major part of the infected tooth will not rid the patient of an infecting focus, if a part of the root and the infecting tissue beyond the root end are left in. It is equally obvious that if the infected and infecting tissue surrounding a tooth is not also removed the infection will continue for a short time, or the entire

life of the patient, depending upon a number of circumstances. It is the root-end, sealed-in infection, that constitutes residual infection.

Owing to the physical condition of the tooth and its surroundings, it is impossible in a great many instances to remove all of the tooth by the ordinary method of extraction without breaking the tooth or crushing a considerable amount of sound tissue in doing so. It is equally impossible to remove the infected tissue about infected teeth without gaining direct and visible access to the tissue and removing it with curettes. It is, in most instances, impossible to do this without removing the outer plate of bone over the root.

SERIOUSNESS OF INFECTED TEETH.

It is frequently said that some of these teeth cause the patient no pain or discomfort, and are useful teeth with which to chew, and the patient is in apparent good health. Why remove them? But we know that pain is only one symptom of disease, and many diseases pursue a successful course painlessly, and the patient is in apparent good health. These diseases, under such conditions, progress to such a degree that when symptoms are exhibited it is impossible to cure them.

No sensible person believes that focal infection is the only cause of disease, or that focal infection causes all diseases, or that teeth are the only source of focal infection. But the evidence of the reports of thousands of cases is of such a nature that it amounts to proof that infection from infected teeth and the infected tissue about them, and the infection sealed in the jaw-bone after the removal of teeth, possess the potentiality of causing a great many diseases of an infective nature, and of influencing the course of any number of diseases, none of which may arise from focal infection. And, as the observation and evidence collected during the great war showed, the removal of infected teeth has a most beneficial effect, even on patients having fractured limbs.

The seriousness of the ills which may follow infection spreading from the alveolar process make the retention of pulpless teeth—dead teeth—seem unjustified either in health or disease. The existence of oral infection should be taken into account by specialists in every line and the helpful results of the work of careful dentists should be appreciated.⁴ The employment of the dental radiographic examination is one of the most helpful aids in arriving at a correct diagnosis that we have. It is also one of the most helpful agents we have to assist us in the performance of careful, complete and sound surgery. It saves the patients time, trouble, expense, perhaps their health, and may even save their life.

The books that I would suggest for those who care to go into the technique of taking and diagnosing dental radiograms are the following:—

Browning—"The Dental Radiogram and Science of Interpretation."

Ivy and Ennis—"Interpretation of Dental and Maxillary Roentgenograms."

Kempster—"Dental Radiology."

McCoy—"Dental and Oral Radiography."

Raper—"Elementary and Dental Radiography."

Raper—"Radiodontia."

Thoma—"Oral Roentgenology."

Tousey—"Roentgenographic Diagnosis of Dental Infection in Systemic Disease."

REFERENCES.

- (1) Osborne, "Journ. Am. Med. Assn., November 15, 1924.
- (2) Bumpus, "Medical Journal and Record," April 2, 1924.
- (3) Tomes, "Dental Anatomy."
- (4) Duke, "International Journal of Orthodontia, Oral Surgery and Radiography," August, 1924.

The Ontario Dental Convention



THE dentists of Ontario will be pleased to learn that their next convention is to be held at the King Edward Hotel. Our regular week has been selected as the best time for our meeting so that the members can attend the convention from May 17th to 20th and then stay over for the races at the Woodbine which commence the following Saturday. The programme committee has sent a questionnaire to the members of the profession requesting suggestions in regard to suitable subjects for essays and clinics. The Board of Governors would like each dentist to send in a list of subjects so that a programme acceptable to all may be arranged. A few outstanding clinicians have already been secured but there is still ample room on the programme for any subject that may be decided upon.

The various committees are all hard at work; the publicity committee will have the first copy of the "Booster" in the hands of the dentists about January the 1st, and it will contain a very interesting article written especially for this number by Dr. C. N. Johnson. Requests for exhibit space are already coming in and everything points to a most successful convention.

Keeping Christmas



It is a good thing to observe Christmas Day. The mere marking of times and seasons when men agree to stop work and make merry together is a wise and wholesome custom. It helps one to feel the supremacy of the common life over the individual life. It reminds a man to set his little watch now and then by the great clock of humanity.

But there is a better thing than the observance of Christmas Day, and that is keeping Christmas. Are you willing to forget what you have done for other people and to remember what other people have done for you; to ignore what the world owes you and to think what you owe the world; to put your rights in the background, your duties in the middle distance, and your chances to do a little more than your duty in the foreground; to see that your fellowmen are just as real as you are, and try to look behind their faces to their hearts hungry for joy; to own that probably the only good reason for your existence is not what you are going to get out of life, but what you are going to give to life; to close your book of complaints against the management of the universe and look around for a place where you can sow a few seeds of happiness?

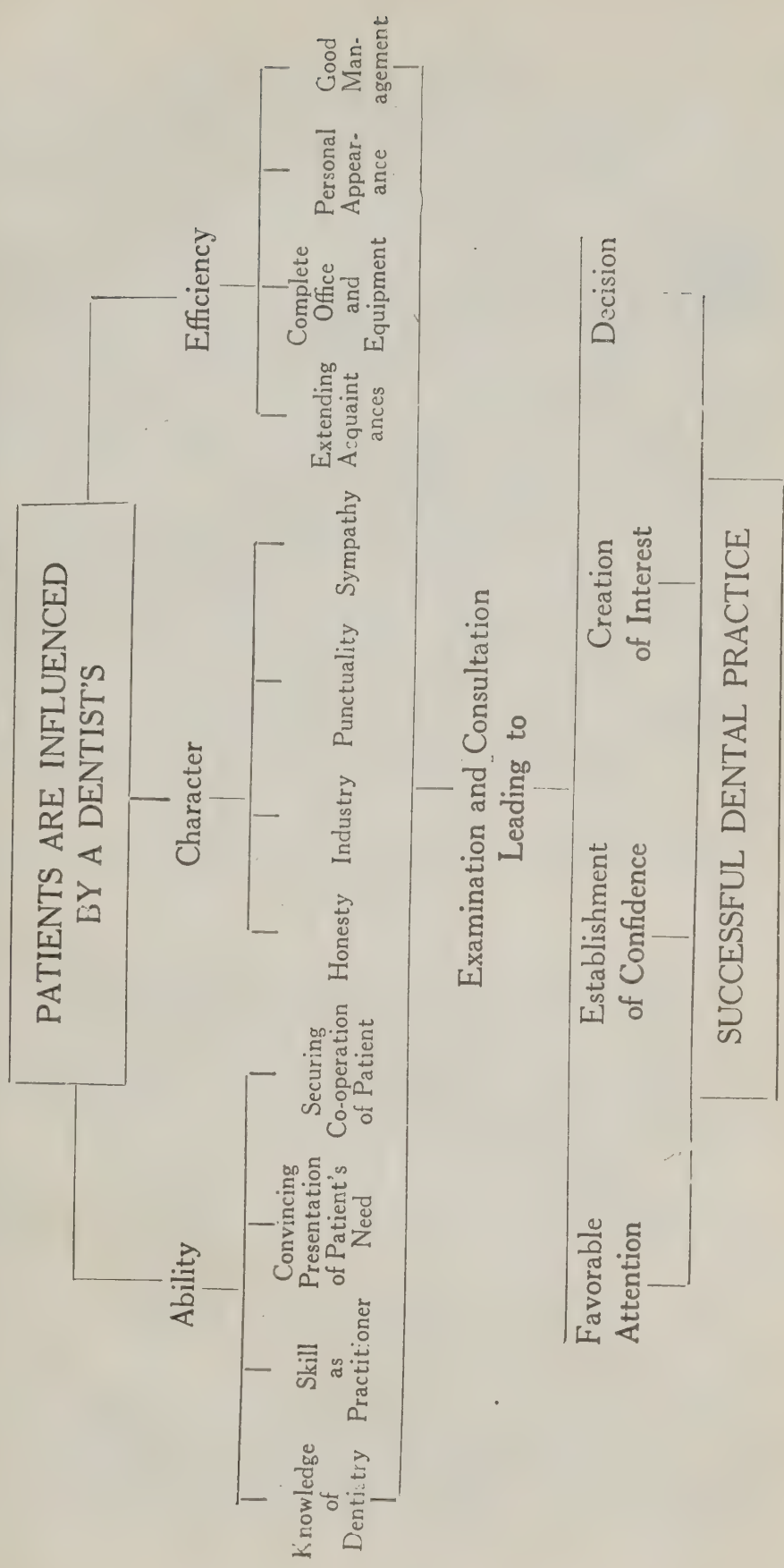
Are you willing to stoop down and consider the needs and desires of little children; to remember the weakness and loneliness of people who are growing old; to stop asking how much your friends love you and ask yourself whether you love them enough; to bear in mind the things that other people have to bear on their hearts; to try to understand what those who live in the same house with you really want without waiting for them to tell you; to trim your lamp so that it will give more light and less smoke, and to carry it in front so that your shadow will fall behind you; to make a grave for your ugly thoughts and a garden for your kindly feelings, with the gate open? Are you willing to do these things for even a day? Then you can keep Christmas.

Are you willing to believe that love is the strongest thing in the world—stronger than hate, stronger than evil, stronger than death—and that the blessed life which began in Bethlehem nineteen hundred years ago is the image and brightness of the Eternal Love? Then you can keep Christmas. And if you can keep it for a day, why not for always? But you can not keep it alone.

—Henry Van Dyke.

Things don't turn up in this world until somebody turns them up; a Pound of Pluck is worth a Ton of Luck.—James A. Garfield.

Outline Chart of Course in Applied Psychology and Economics, Faculty of Dentistry, University of Toronto



We Can All Lengthen and Enrich Our Lives by Re-arranging Our Twenty-four Daily Hours

“LL adults may be divided into three classes.

“First, those who are very keen on the work by which they earn their living, who run to this work as the bridegroom to the bride, and leave it with even more reluctance than the bridegroom leaves the bride,” writes Mr. Arnold Bennett, the well-known novelist, in the *London Sunday Pictorial*. “Second, those who are not keen on their work, starting it with reluctance and quitting it with a sigh of relief. Third, those who do not have to work regularly for a living—a large class.

“The first, concentrating on their master-passion, detest spare time and become narrow through over-concentration. The second class have usually plenty of spare time, but usually fritter it away as spend-thrifts fritter away money. The third class are often the busiest and the most rushed of the three, and find it the most difficult to organize—simply because they have had no discipline.

“But all three classes are alike in the excellent desire to live more calmly and more fully. And all three classes should treat themselves in the same way, for all three will cry out with the same voice: ‘I have no time for widening my life. I cannot make time.’

“Well, of course, we cannot any of us *make time*. Time is a fixed quantity.

“There is, however, more time at our disposal than we generally suppose.

“The problem is not to *make* time, but to *arrange* time. Bad time-habits must be broken. They can only be broken by ruthless methods, for it is far easier to break a good habit than a bad one. The members of the first class must ruthlessly limit the exactions of their master-passion—a difficult undertaking, but they have the immense advantage of self-discipline already acquired.

“The spare time of the second class is encumbered with a litter of disconnected trifles which must be ruthlessly swept up to make a clear space for some regular activity. They have some self-discipline to help them.

“The whole life of the third class is a horrid mess of time-extravagance and waste. They have rich resources of time, but lack the self-discipline to utilize those resources.

“The greatest danger of all three classes is—to wait. We all say: ‘When I have drawn level, when I have put everything into order, then I will make a start.’ Ridiculous, because not ruthless!

“Chop, uproot, sweep away—something, anything, no matter what.

at once; but make a space! Something must go, something must suffer; in every life there is, as a rule, only one thing that is important; and of the others it doesn't matter much which is ruthlessly sentenced to the rubbish heap.

"A maxim is ruthlessness. Let us not be too ambitious in clearing a space. We are apt to say sadly: 'Ah! Unless I could get two clear hours every day I could do nothing.' Not so. With a little space here, one can do a lot. Also, cross out the phrase 'Every day,' and insert 'every week.'

"Seven hours a week is the equivalent of one hour a day, and is easier to manage. The hazards of dailiness may ruin any given day, and if the self-imposed rule has been 'every day,' one is thereby morally damaged. But a week affords opportunity for recovery without shame.

"And now you complain: 'But he has not said a word about employing the time which we are to arrange for!' Of course I have not. Everybody has private ambitions towards a wider and fuller life. And no two ambitions are quite alike.

"Some want to acquire knowledge, some wisdom, some skill, some improved health. Each must search his own mind. The choice is vast. Some things are better than others; but none is bad."

Dominion Dental Council Examination Results

THE following have passed the Dominion Dental Council examinations held during the month of September, 1925:

Operative and Preventive Dentistry—Dawson, W. G.; Hughes, R. W.; Kerr, H. W.; Kerster, G. W.; MacDonald, G. S.; Urie, E. H.

Prosthetic Dentistry—Adams, Lois; Cowan, F. H.; Dawson, W. G.; Kerster, G. W.; MacDonald, G. S.; Urie, E. H.

Anaesthetics—Addenell, W. C.; Cowan, F. H.; Cross, S.; Dawson, W. G.; Hainer, W. E.; Hughes, R. W.; Kerster, G. W.; Milburn, W. B.; MacDonald, G. S.; Reeves, H. W.; Thurston, G. B.; Urie, E. H.

Pathology and Bacteriology—Falconer, R. L.; Kerr, H. W.; Kerster, G. W.

Bacteriology (only)—Milburn, W. B.; Reeves, H. W.

Jurisprudence and Ethics—Dawson, G. W.; Kerr, H. W.; Kerster, G. W.; MacDonald, G. S.

Physiology and Histology—Addenell, W. E.; Calbeck, L. M.; Corlett, H. M.; Dobson, J. W.; Freir, D. R.; Hainer, W. E.; Havenstock, A. B.; Israel, L. G.; Kerster, G. W.; Lloyd, V. M.; Moffat, H. F.; McBrien, J. M.; Squire, G. C.

Histology (only)—Brock, J. F.; Findlay, C.; MacDougall, D. A. B.; Slemon, L. R.

Medicine and Surgery—Armstrong, W. F.; Dawson, W. G.; Kerr, H. W.; Kerster, G. W.; MacDonald, G. S.

Anatomy—Addenell, W. E.; Brock, G. F.; Corlett, H. M.; Dobson, J. W.; Findlay, C.; Falconer, R.; Freir, D. R.; Havens'ock, A. B.; Howard, G. B.; Hutzulak, P.; Israel, L. G.; MacDougall, D. A. B.; Squire, G. C.

Materia Medica and Therapeutics—Kerster, G. W.; Thurston, G. B.

Physics and Chemistry—Addenell, W. E.; Dewis, G. M.; Godsoe, W. H.; Hainer, W. E.; Kerster, G. W.; Millar, J. P.; Smith, Donald; Squire, G. C.; Tupper, J. A.

R.C.D.S. Faculty Letter, Discontinued



It will be remembered that the Board of Directors of the Royal College of Dental Surgeons of Ontario, at the annual meeting, May, 1924, directed that "a Faculty Letter be published under the direction of the Executive of the Faculty, and a copy be sent quarterly to each member of the profession in Ontario, at a cost not to exceed \$200.00 for the year." Acting under these instructions, the Faculty Executive issued two numbers, June and September, 1924. At the Board meeting in October, 1924, the matter of the "Faculty Letter" was informally discussed, and it was decided, in view of the possibility of the transfer of the School of Dentistry to the University of Toronto, to suspend publication. In January the ballot on the transfer was decided, with the subsequent verdict favorable to the transfer. On July 1st last the School of Dentistry became a Faculty of the University.

As it has not been the policy of the Faculties in the University to issue such publications, the Executive of the Faculty of Dentistry of the University, at a meeting on November 20th, decided that, under the circumstances, it was inadvisable to continue the "Faculty Letter."

There Are No Heating Foods



One of the foolish fallacies prevalent among even the widely-read and well-informed is that there are certain foods which "heat the blood," and others which "cool the blood."

Alfred W. McCann, in his "Science of Eating" specifically declares there are no foods capable of increasing the heat of the body above the constant normal of 98.4, or decreasing it below that same figure. He says:

"Foods are neither heating or cooling. No food has the power of raising the temperature of the body to a point higher than the normal constant, 98.4 degrees Fahrenheit. No foods are cooling in the sense that they can reduce the temperature of the body to a point lower than this same normal constant."

This fallacy is close kin to that indefinite thing known as "light" food, or "heavy" food. They all show how utterly ignorant humanity is of why it eats.

It is utterly astounding how many people implicitly believe that in the summer time they must avoid certain foods because they are "heating" and must use others because they are "cooling" to the blood. Every reader of these lines should make it his duty to inform his friends and neighbors that this is a fallacy utterly without foundation in fact or truth,—*Motive*.



NTARIO dentists who desire to secure oral hygiene material in the form of slides, booklets, films and newspaper articles are urged to send the request to Dr. Fred J. Conboy, Director of Dental Services, Spadina House, Toronto. Slides, booklets and newspaper articles will be sent without rental fee, but the dentist is expected to pay the postage or express charges when returning them. When ordering slides please indicate the exact date when they will be required. In all cases where the meeting is of sufficient importance, or where several smaller meetings have been arranged, an operator with a machine and moving picture films will be provided. Charts, for use in giving dental health talks in places where it is not possible to use a lantern, are also available, and a complete oral hygiene exhibit for use at small fairs and circuses is being arranged.



The Oral Hygiene Committee of the Ontario Dental Association has just completed a very careful survey of conditions in Ontario from the dental health standpoint. A letter outlining the conclusions arrived at, and setting forth recommendations which, in the opinion of the committee, will at least partially solve the problems which confront the profession, will be sent to each dentist in the province.

The committee is extremely anxious that no member of the profession should feel that there is any attempt on their part to dictate to men who are so efficiently serving the people in all parts of Ontario. We feel absolutely confident that there will be no such feeling; we all realize that if we are to accomplish any worth-while work in dental health education we must have concerted action. It is only by working together and having a common programme that the best results can be achieved; outstanding difference of thought and action usually lead to public distrust and lack of confidence. Not that we should not each use our individual judgment in every case, but there are a sufficient number of things so well established and so universally regarded as sound and correct practice that a definite programme applicable to the

whole profession can safely be adopted. The individual dentist will, of course, make slight modifications to meet existing conditions. With these thoughts in mind the members of the Oral Hygiene Committee have drafted this message to the profession, and they respectfully and earnestly urge each dentist to give the matters contained in the letter thoughtful consideration, expressing the hope that the profession as a whole may decide to accept the programme submitted.

* * *

The Rotary Club at Trenton conducted a very successful dental field day on Monday, October the 26th. In the afternoon the children from the high, public and separate schools, accompanied by their teachers, parents and friends, assembled in the Opera House. The auditorium, which holds over fifteen hundred people, was crowded, and many could not gain admission. The programme consisted of singing, motion pictures, and an illustrated address on dental health, given by the Director of Dental Services. The president of the Rotary Club announced that a suitable prize would be given to the boy and girl in each school who wrote the best essay upon the subject of oral hygiene, using the material presented by the speaker of the afternoon.

In the evening the business men of Trenton assembled at the hotel for luncheon as the guests of the Rotary Club. Dr. Conboy delivered an address on "Dentistry as a public health activity," using slides to demonstrate the need for dental treatment and how this need was being supplied by the Department of Health. He urged upon his hearers the absolute necessity of providing adequate dental treatment for the boys and girls in the schools, stating that unless the physical defects were removed, a high standard of scholarship could not be expected.

Happiness



APPINESS goes out from the heart before it comes in—it never by any chance stays at home,—

You can harvest it for the common good, but you cannot store it for your sole, individual use,—

You can lend it, but you cannot borrow it,—

You can earn it, but you cannot buy it,—

You can spend it, but you cannot accumulate it,—

A man must contribute to the stock of human joys before he can participate in its profits. To sell happiness without giving it is a futile quest, and all our longings for what we have not learned to give to others are as empty bottles in the wine-cellars of our souls,—

Happiness really never was any good in this world but when given away.



British Columbia—RAY H. WILSON, D.D.S.

736 Granville Street, Vancouver

Alberta—JOHN W. CLAY, D.D.S.

914 Herald Bldg., Calgary.

Saskatchewan—C. W. PARKER, D.D.S.

Imperial Bank Bldg., Regina.

Maritime Provinces—J. STANLEY BAGNALL, D.D.S., 34 Larch Street, Halifax, N.S.

Manitoba—W. W. WRIGHT, D.D.S.

767 Warsaw Ave., Winnipeg.

Ontario—LIEUT.-COL. W. G. THOMPSON

28 King St. West, Hamilton.

Quebec—ARCHIE N. JENKS, D.D.S.

Medical Arts Bldg., Montreal, Que.



ONTARIO.

HAMILTON ACADEMY OF DENTISTRY.



ON Wednesday, 18th November, 1925, the Academy met at Hotel Connaught at 4 p.m., when an interesting paper was presented by Dr. J. M. Hunt, Acting Director of Communicable Diseases Branch of the Department of Health. Dr. Hunt gave special attention to Oral Lesions and Methods of Distinguishing Ailments Caused by Faulty Teeth.

At dinner following the afternoon clinic the Honorable Dr. Forbes Godfrey, Minister of Health, Province of Ontario, was guest of honor, and seated at the head table with him were Dr. J. E. Johnson, President of the Academy; Dean Secombe of the Faculty of Dentistry, Dr. W. J. Bell, Deputy Minister of Health, Dr. Jas. Roberts, Health Officer for the City of Hamilton; William Mullis, Editor of *The Spectator*; W. J. McNair, Editor of *The Herald*, and Dr. F. J. Conboy, Director of Dental Services, Province of Ontario.



ADDRESS BY THE HONORABLE THE MINISTER OF HEALTH.

The Honorable Dr. Godfrey referred to the active co-operation that now exists between the Department of Health and the dental profession and proceeded: It has been a source of pride to me to put the dental profession in a place where it should be. The profession is one of the most important specialties connected with the welfare of the human body. I felt that the only way to recognize the importance of this was to put a man who would meet the requirements, in a place where he could represent the dentists of this province.

When I think of the specialists now—the throat specialists, who look after tonsils—the chiropodists, who look after feet—the ear specialists, who look after nothing else—what do they know of teeth? Yet here is

where digestion starts. Teeth, one or two molars, are sometimes the cause of a lot of trouble. It's the duty of every physician, when he calls in all these other specialists to a diagnosis and consultation, to call in a dental surgeon. That has been my advice. We can exchange our opinions and improve our grasp of the situation and thereby help our patients. Every one should have a thorough examination of the teeth.

I certainly appreciate the co-operation you men have given me, for you are doing a real work in the province.

When in Budapest last summer, I noticed that it was necessary there that dentists take medical courses, and men of the medical profession had to take up dental studies. It makes me realize that the dental work has become tremendously important, especially when one considers the important work and exhaustive research carried on by Dr. Harold K. Box.

* * *

ADDRESS BY THE DIRECTOR OF DENTAL SERVICES.

Dr. Conboy was introduced by Dr. Percy Moore, who jokingly informed the Minister of Health that if the other ministers of the government show the same good judgment in selecting heads for their departments, the government will be kept in power for many a day. Dr. Conboy reported upon the local school dental clinics and paid tribute to the work being accomplished for the boys and girls, mentioning particularly the names of Drs. Walter Thompson and George Everett. The speaker stated that out of 18,000 local children examined in a recent dental survey only a few over a thousand had perfect teeth. Six hundred and sixty-four of the remainder were in serious danger, while only 20.1 per cent. of those examined were receiving dental treatment.

Deploring the fact that it was necessary to make so many extractions at the clinic, Dr. Conboy stated that there would be a public uproar if that number of children were crippled in any other way, yet apparently the citizens viewed with indifference the spectacle of children being made dental cripples through lack of proper dental attention. "Let us make an effort to do something more for the kiddies. They are in our care. Let us have a service that will properly and adequately look after the children of the province," concluded Dr. Conboy.

* * *

PRESENTATION TO DR. THOMPSON.

During the evening, the President expressed the good-will and appreciation of the Academy members toward Dr. W. G. Thompson for the years of service he has freely given in the interests of dentistry, both during and since the war, and on behalf of the Academy presented him with a gold watch suitably inscribed.

EDITORIAL COMMENT.

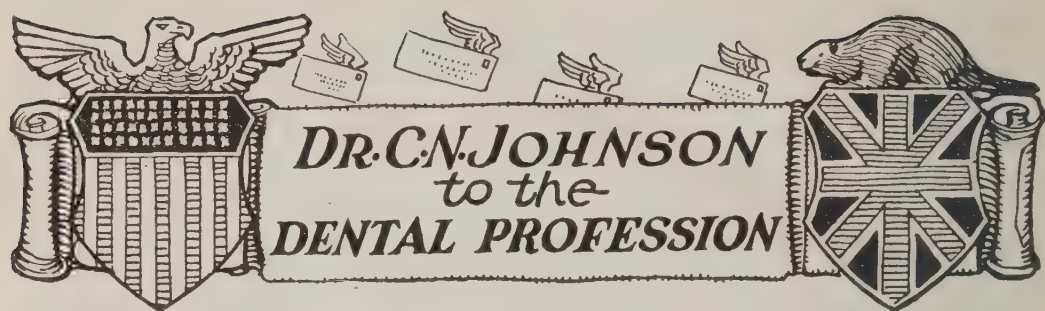
The day following the Academy meeting the *Hamilton Spectator* editorially commented as follows, under the caption, "Praise for Dentists":—

The well-deserved tributes paid officially to Dr. Walter Thompson, past president, at the dinner given in his honor by the Hamilton Academy of Dentists on Tuesday night, will be cordially endorsed by citizens in general. The Provincial Minister of Health, Dr. Forbes Godfrey, complimented the local organization on the work it was doing and warmly commended Dr. Thompson for his efficient direction of its activities. He emphasized the extreme importance of dental health and urged the public to co-operate with the local specialists who are giving so generously of their time and skill for the benefit of the juvenile population. Such co-operation should be willingly accorded. The amount of dental disease among children disclosed by the recent school survey is deplorable. Only one out of every eighteen pupils examined, declared Dr. Conboy, had perfect teeth. It was found that 664 of the 18,000 children reported on "were in serious danger," and of the entire number only 20.1 per cent. were receiving expert attention. These statistics reveal the need of the work for children undertaken by the Hamilton Academy of Dentistry. Great progress has been achieved since it commenced operations, and a distinct improvement over former conditions is apparent.

Gratifying as the advance has been, it is still but a beginning. There are great opportunities awaiting adequate public support for their realization. The dentists and medical men are fully alive to the necessities, but are unable to do all they would like to do for the welfare of the community. As Dr. Roberts, medical health officer for the city, said, "No more than the fringes were being touched just yet, and more had to be done for the children whose parents would do nothing." That is the trouble. The splendid efforts of the professional men are hampered by indifference and sometimes by actual opposition on the part of people who are not alive to the importance of the work. Much educational effort is required among the public, and especially parents and officials in positions of civic responsibility, before the movement is appreciated at its full worth. The signs are, however, propitious. The public is displaying an increasing interest and a great deal has been accomplished. Our universities fully recognize the value of dentistry and maintain qualifications at the highest standard. Dentistry has been given its rightful place as a learned and skilled profession and its practitioners rank with those of the medical faculty as specialists in their department. Coming generations will be spared the torments and dangers to which their forebears were subjected through ignorance and neglect. Dentistry as it is practised to-day is one of the most beneficent achievements of modern science.

—J. E. J.

If you are on the right track, the winds and the tides are with you and will get you there in the end—if you don't give up.



Idle Acres



ONE summer I was driving along the country road past the place where I was born, and I saw a large beautiful field next to this farm gone to waste and grown up with weeds. I asked my companion what this meant, because in all the years I had known this place I had never seen it neglected before. He informed me that it had been impossible that year for the owner to get labor to put in the crop. It was when the war was on and I was made to reflect anew on the terrible crime of war in taking the man-power of the nation away from productive pursuits, and diverting it to the destruction of men. And it brought another reflection fully as pertinent—I thought it was typical of the idle acres in the minds of many men. How much potential good there is in the mentality of individuals that is never cultivated. Every man has greater possibilities in his mental make-up than he ever employs for his own benefit or for that of the world at large. It is the destined heritage of most men to be able to expand the mind into a wondrous world of achievement, and so very few take advantage of it. No neglect of life is more serious than this, or more sinful. To waste the material things of the world is reprehensible profligacy, but to waste the mentality is wanton iniquity. There is no dereliction in the minor category greater than this. To be given that marvelous mechanism of thought known as the brain, and then to let it run fallow through sheer neglect, or laziness, is a crime against society of the greatest magnitude. How men can do this to the extent that is done to-day is beyond belief. Idleness of body is bad, but idleness of brain is worse, and yet there are more idle brains than bodies.

The bounden duty which devolves on every individual to make the most of his natural endowments never seems to impress the average person as a special obligation of life, and yet there is nothing more binding than this. It is not written into our statute books, but it is a greater law than any made by man—it is the sacred law of nature. I am just as great a robber when I deprive my fellowman of the products of my brain through failure to develop it, as I am when I deprive him

of chattels which rightfully belong to him. He is entitled to all the benefits that can come to him as the result of my mental endowment, and I cannot shirk my responsibility by saying that I was mentally unable to help him, if nature gave me the equipment to make me mentally able. This may sound like a fine-spun theory, but it is the very essence of our obligation to humanity, and it will stand analysis to the last degree if resolved down to its fundamental findings.

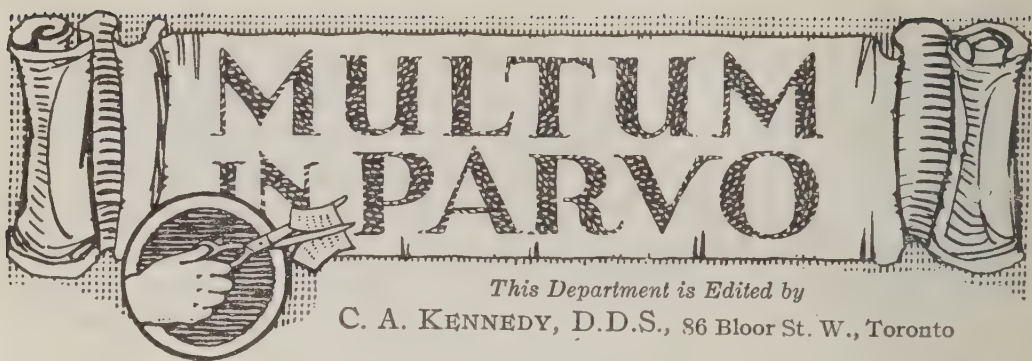
The idle acres in the brains of men constitute the greatest waste in the world to-day. How much more efficiently would the machinery of life move along, and with how much less friction in the bearings, if every man thought up to his full capacity. Lack of proper thinking is accountable for most of the mismanagement and mishaps in the affairs of men. When it comes to the social intercourse one with another how much more helpful we might be if we were all up to our highest mental capacity. We would know more things than we do to-day of infinite value to our fellows, and would be able to aid them in their difficulties and dilemmas. The man who has developed his mentality to the widest scope and who thus has the broadest outlook on life is the one to whom we appeal in any of our emergencies. The best trained brain is always the one which can think the quickest and surest, and which can take in all sides of every situation. Think of the aggregate loss to the world through all the idle acres in all the brains of all the sons of men. It is more appalling than the loss through forest fires, or earthquakes, or storms, or disasters of all kinds combined. It is too stupendous to estimate, and it might all be prevented. If every man and woman of accountable age would resolve to cultivate their brains to capacity, and would then live up to their highest light, the affairs of men would blossom into flower and fruit, and we would have a better and a happier world. And even if only those who chance to read these lines would do their humble share it would add immeasurably to their own satisfaction, and contribute largely to the welfare of those with whom they come in contact.

C. H. Johnson

The American Dental Society of Europe

The next meeting of the American Dental Society of Europe will take place at Nice on April 5th, 6th, and 7th, 1926.

E. D. BARROWS, *Hon. Secretary.*



PULP PRESERVATION.—Should it be considered advisable not to devitalize in the case of a tooth which decay has encroached to such an extent that if all decay were removed exposure of the pulp would result, the following method of pulp preservation may be found useful. The rubber dam having, if possible, been adjusted, and convenient access obtained, the cavity is swabbed with phenol and dried. Eugenol is next applied, and without drying all decay is removed from the walls of the cavity, using small round burs, Nos. $\frac{1}{2}$ or 1, revolving bur slowly, and with a gentle touch, until all decay is removed from the cavity walls, and as much as possible from over the pulp without causing an exposure. Eugenol is again applied directly over the pulp by means of cotton twisted round a broach. This is done to cause the protecting paste to adhere more closely, and also for its palliative action.

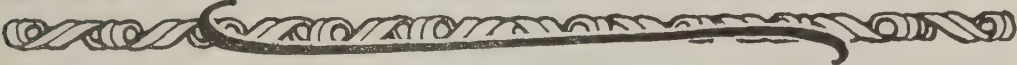
A stiff paste of eugenol, magnesium and zinc oxides, with silver nitrate is preferred, where there is much decay remaining in the cavity, and where there is no danger of irritation from the silver nitrate; otherwise a paste of magnesium and zinc oxides with eugenol is used. These pastes are applied with a suitable exploring point, being carried to the particular area and gently placed there without coming into contact with the cavity walls or margins. Should contact occur there is a likelihood of the sealing cement not adhering properly. Calxine, or some similar cement may be used to flow over and seal in the paste.—*Dental Summary.*

POST OPERATIVE PAIN.—What do you do for after pain?

The best way to control after pain is by preventing it.

Strict asepsis in operating room, sterile instruments, sponges and dressings, sterile syringes and anæsthetic solutions, slow injections of solutions of body temperature, careful manipulation of soft tissues, removal of all loose edges of bone and smoothing down all sharp edges of process, will do a lot in prevention of after pain.—*D. C. W. Coupland, Ottawa.*

Oral Health



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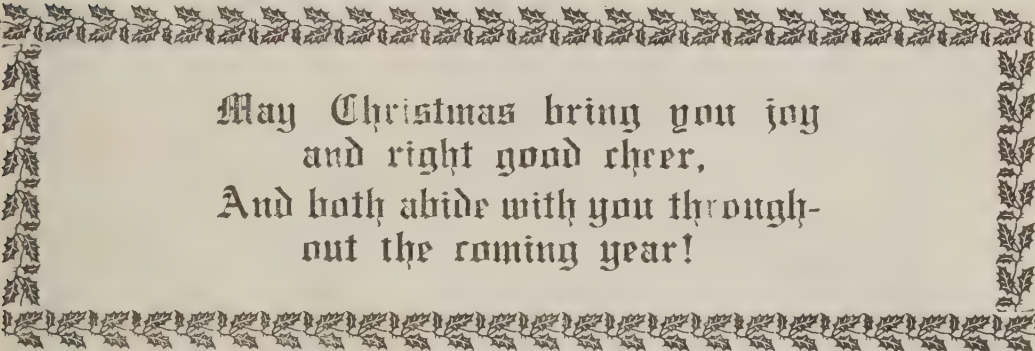
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Vol. 15

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No. 12

EDITORIAL



May Christmas bring you joy
and right good cheer,
And both abide with you through-
out the coming year!

Status of Dental Education Recognized by the Regents of the State of New York



THE Amendment to the Medical Law of the State of New York, permitting the admission of dental graduates to registered medical schools, is a most important forward step in a general recognition of the status of dental education and in bringing about closer co-operation between the Medical and Dental Professions.

Dr. Augustus S. Downing, Assistant Commissioner and Director of Professional Education, State of New York, in a report upon Higher Education, refers to this Amendment and states that "for some time the graduate of a registered medical school has been allowed to secure the degree of D.D.S. by the completion of a two-year course in a registered dental school, but the dental graduate has had no similar concession made him in order that he might obtain the M.D. degree. This situation has been very properly changed by chapter 496 of the Laws of 1923. The graduate of a registered dental school with the degree of Bachelor or Doctor of Dental Surgery may now be admitted to the third year of the four-year course in a registered medical school, provided his admission requirement was the same as the medical school requirement, and provided, further, that his course in Dentistry covered the minimum requirement prescribed for the first two years in the registered medical school. Thus the dental graduate takes his place on the same reciprocal basis with the graduate in Medicine, in so far as his course of study is concerned. This is but another evidence that these two professions, which should be so closely allied, are being drawn nearer together. Dentistry and dental education have been making rapid strides during the past few years, and the close relation which must exist between these two great branches of the science of healing is more and more realized."

The Regents have approved the first two years of the four-year course of study for dental schools, as follows:—

Subjects—First Year.		Rec. hrs.	Lab. hrs.	Actual hrs.
Anatomy		90	90	180
Chemistry, Organic		30	..	30
Histology		60	90	150
Physiology		60	60	120
Dental Anatomy and Operative Technic		30	90	120
Prosthetic Technic		30	310	340
Metallurgy		30	30	60
Total		330	670	1,000
Subjects—Second Year.		Rec. hrs.	Lab. hrs.	Actual hrs.
Anatomy		30	..	30
Chemistry, Organic and Physiologic		60	120	180
Physiology		60	90	150
Histology, Dental		30	60	90
Bacteriology		60	60	120
Prosthetic Dentistry		30	135	165
Operative Dentistry		60	145	205
Hygiene and Sanitation		30	30	60
Total		360	640	1,000

There may be some difference of opinion as to the precise advanced standing that a medical graduate should be granted in a dental school, or that a dental graduate should be granted in a medical school. There can, however, be no question about the importance of this decision to Dentistry, or of its value in raising the status of the Profession and of dental education.

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